

JOURNAL of the American Veterinary Medical Association

FORMERLY

AMERICAN VETERINARY REVIEW

(Original Official Organ U. S. Vet. Med. Assn.)

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CONTENTS

Editorial	273
Coming Veterinary Meetings	276
Papers:	
Hog Cholera Control versus Prevention—I. K. Atherton	278
Bacteria of the Genital Tract of Mares and the Semen of Stallions and Their Relation to Breeding Efficiency—W. W. Dimork and Ethel Snyder	288
A Challenge to the Veterinary Profession—H. Barton and R. L. Conklin	299
The Bacteriology of Progressive Pneumonia of Sheep—Hedrich Marsh	304
Notes on the Treatment of Foxes with Carbon Tetrachloride and the Use of Soft Elastic Globules for Preventing Inhalation-Collapse—Karl B. Hanson and H. L. Van Volkenberg	318
Chronic Carriers in Fowl Typhoid—B. F. Kaupp and R. S. Dearstyne	329
Business Principles as Applied to Veterinary Practice—A. L. Danforth	334
Pyometra in the Bitch—R. H. Spaulding	338
Veterinary Extension Work in Kentucky—T. P. Polk	342
Double Intradermic Tuberculin Injection—G. E. Golden	346
Clinical and Case Reports:	
An Unusual Case of Rabies—B. M. Lyon	348
Petechial Fever—Roy F. Hess	349
Big Ones This Time—G. G. Faber	350
Reviews	351
Abstracts	351
Association News:	
Proceedings of the Sixtieth Annual Meeting, American Veterinary Medical Association	354
Report of the Meeting of the Women's Auxillary	364
A Proposed Policy for the A. V. M. A.	366
Lost	373
Other Meetings	374
State Live Stock Sanitary Officials	389
Legislation Affecting Veterinarians—Year 1923	391
Bibliography on Bovine Infectious Abortion	398
Communication	401
Necrology	403
Personals	404

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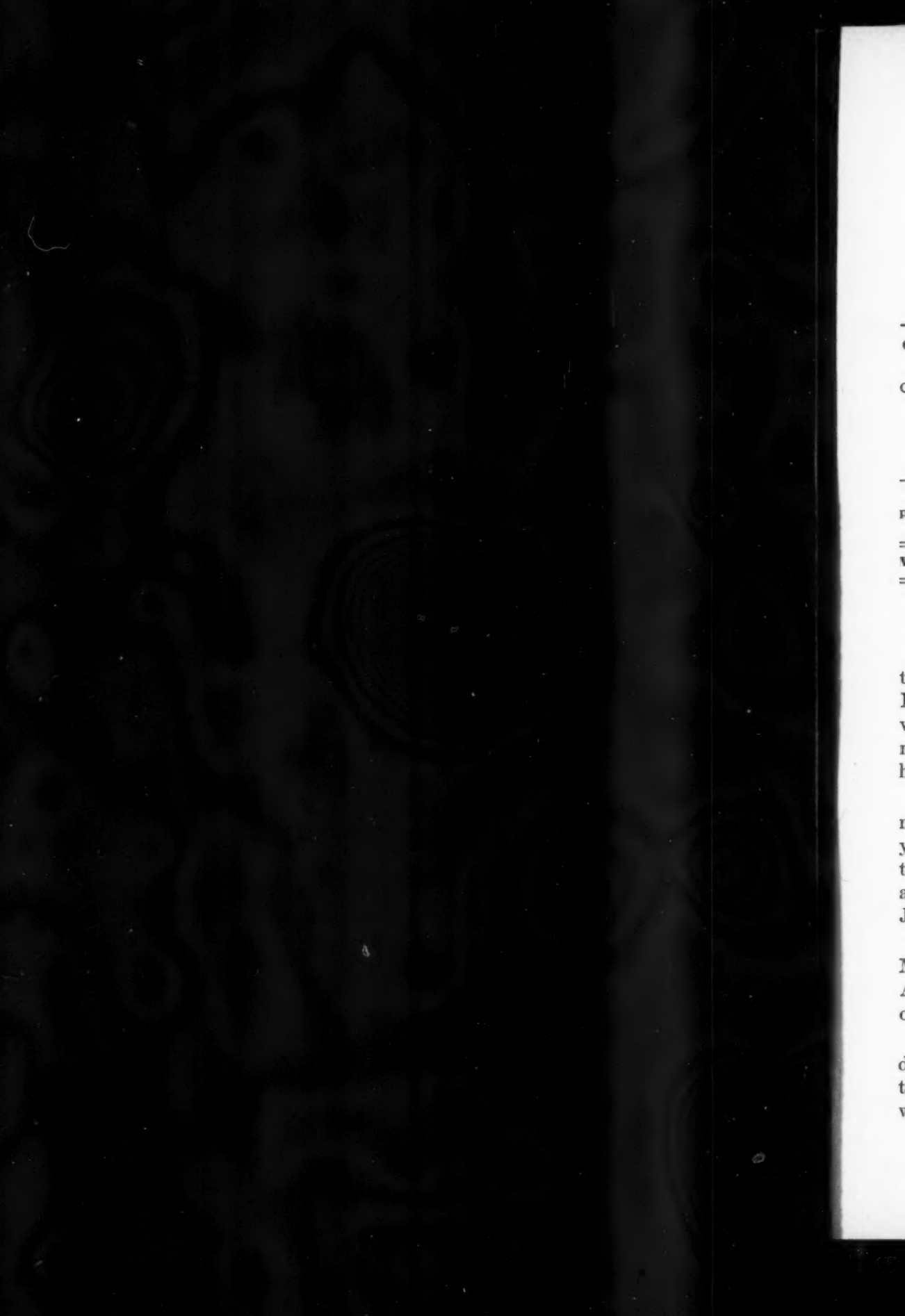
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H. Preston Hoskins, Secretary-Editor, 735 Book Building, Detroit, Mich.

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December, 1923

No. 3

HAVE WE YOUR CORRECT ADDRESS?

Will you kindly look at the address on the envelope in which this issue of the Journal was received. Is the address correct? During the past few months we have given our mailing list a very careful checking, as a result of which we have found it necessary to have almost a thousand new stencils made. This has been quite a task and has cost considerable money.

The Executive Board has authorized the publication of a new membership directory. There has been none published for three years, so a new edition is badly needed. Unless we are advised to the contrary, members will be listed with their addresses just as the same appear on the envelope in which this issue of the Journal was mailed.

Members who are delinquent will not be listed, of course. May we have your cooperation in making the directory accurate. Advise us immediately of any inaccuracy, either in your name or address.

A nominal charge will be made for copies of the new directory. The heavy expense will not permit free distribution to the entire membership, as heretofore. The price per copy will be announced next month.

DANGER AHEAD

In discussing the present shortage of students in our veterinary colleges, there seems to be one phase of the situation that is generally overlooked. Figures published in the November issue of the *JOURNAL* show that we can not expect to have more than 150 veterinarians graduated each year, for the next four years, from the colleges in the United States and Canada. The number is likely to be some less than 150 per year. This number will fall far short of replacing those who are lost to the profession through death, retirement and entry into other fields.

† In answer to those who maintain that there has been overproduction in the past, we will grant that this may have been the case for a few years. From 1910 to 1918, both years inclusive, there was an average annual crop of 743 veterinarians graduated from our colleges. In the five years since 1918, this number has dropped to approximately 240, less than one-third of the 1910-1918 period. This is out of all proportion to the demand for veterinary services, and if present conditions do not change there is bound to be a shortage of qualified veterinarians in the not-far-distant future.

† The danger of the situation lies in the fact that our various veterinary practice acts are very likely to be tampered with. Large territories without the services of registered veterinarians will feel the need of some sort of veterinary service and the tendency will be to seek relief through remedial legislation, designed to relax present statutes and give the right to practice to unqualified individuals—quacks—to call spades spades. In this connection the fact should not be overlooked that we now have educated quacks, who are likely to cause more trouble for qualified veterinarians than the ignorant quacks of by-gone days ever did.

To substantiate the belief that the danger is real and actually exists, examination of the legislative summary published in this issue of the *JOURNAL* shows that in at least eight states, during the present year, there were attempts made to modify unfavorably the present existing statutes regulating the practice of veterinary medicine and surgery. Fortunately, in seven out of the eight states, these attempts were unsuccessful. In one state, although the law was not changed, the Legislature granted the right to practice to eight non-graduates.

Keep this phase of the question in mind and do not underestimate its importance and possibilities.

FEATURES IN THIS ISSUE

This issue might rightfully be designated a feature issue, in view of the fact that we are publishing considerable material that is new to the pages of the JOURNAL. Of these, we might mention the summary of legislative activities in the various states during the present year, directly or indirectly affecting the veterinary profession. This information has been gathered from various sources and is believed to be accurate as far as it goes, though probably not complete. However, it is hoped to make this legislative summary an annual feature of the JOURNAL, and with the start made this year, the 1923 summary can be referred to as a guide for those in the various states who will be asked to report the 1924 crop of legislation.

Closely allied to legislative matters, we present this month a complete list of the various state live stock sanitary officials. There have been a number of requests for such a list and the one being published is believed to be correct up to November 15, 1923.

In another part of the JOURNAL we list the names of members of the Association who are "lost," so far as the Secretary's office is concerned. Mail sent to these members at the addresses given has been returned. It is hoped that our members will be able to help us find these lost members. If you can give the correct address of only one of the members on the list, this will be appreciated.

Do not overlook the proposed policy of the A. V. M. A., published for the first time in this issue. It is hoped that every member will study this diligently.

A bibliography on contagious abortion, compiled by Dr. Ward Giltner, is being published in this issue of the JOURNAL, the same having been omitted from the report of the proceedings of the twenty-sixth annual meeting of the United States Live Stock Sanitary Association.

A report of the meeting of the Women's Auxiliary to the A. V. M. A., held at Montreal in August, is included in this issue, and it is to be hoped that every member will see that this report is read by the female members of his family.

We are able to give a very comprehensive report of the recent World's Dairy Congress this month. You will find it under Association News. There was considerable of a veterinary atmosphere in connection with this gathering, which has been reported by Dr. George H. Hart, of the University of California,

who attended all of the sessions of the Congress, in Washington, Philadelphia and Syracuse.

We take this opportunity to thank all those members who have so willingly assisted in getting together the material for these reports. Without their prompt and whole-hearted cooperation these features would not have been possible.

A WONDERFUL TRIBUTE TO THE HORSE

Did you see the November number of the National Geographic Magazine? If not, you have missed something. By all means secure a copy at once. The entire November issue was devoted to a single article dealing with horses, asses and mules. According to Secretary Dinsmore, of the Horse Association of America, this special edition has been in preparation for more than two years and the cost of this number is estimated to have been in excess of \$200,000. It is the most notable and accurate single contribution to the literature on horses and mules ever published. The color plates, twenty in number, representing every breed, are from paintings made especially for the National Geographic Society. When it is considered that the circulation of the National Geographic Magazine is over 700,000 copies, it can be estimated how great will be the interest in the horse, created by this authoritative exposition of the subject. If you are not already a member of the National Geographic Society, make application for membership immediately, enclosing \$3.00, and stating that you wish your subscription to the magazine to begin with the November issue. The headquarters of the National Geographic Society are in Washington, D. C.

COMING VETERINARY MEETINGS

Illinois Veterinary Medical Association. Lexington Hotel, Chicago, Ill. Dec. 4-5, 1923. Dr. L. A. Merillat, Secretary, 1827 So. Wabash Ave., Chicago, Ill.

New York City, Veterinary Medical Association of. Academy of Medicine, 17 W. 43rd St., New York City. Dec. 5, 1923.

Dr. C. G. Rohrer, Secretary, 40 W. 61st St., New York, N. Y.

Horse Association of America. Blackstone Hotel, Chicago, Ill. Dec. 5, 1923. Wayne Dinsmore, Secretary, Union Stock Yards, Chicago, Ill.

U. S. Live Stock Sanitary Association. Hotel La Salle, Chicago, Ill. Dec. 5-6-7, 1923. Dr. O. E. Dyson, Secretary, 923 Exchange Bldg., Kansas City, Mo.

- Nebraska State Veterinary Medical Association. Grand Island, Nebr. Dec. 11-12, 1923. Dr. F. R. Woodring, Secretary, Lincoln, Nebr.
- Michigan Veterinary Medical Society, Central. Otsego Hotel, Jackson, Mich. Dec. 12, 1923. Dr. W. N. Armstrong, Secretary, Concord, Mich.
- New York Veterinary Medical Association, Western. Erie County S. P. C. A. Headquarters, 121 West Tupper Street, Buffalo, N. Y. Dec. 14, 1923. Dr. F. F. Fehr, Secretary, 243 South Elmwood Ave., Buffalo, N. Y.
- Delaware Veterinary Medical Association and University Veterinary Conference. Wolf Hall, University of Delaware, Newark. Dec. 19, 1923. Dr. C. C. Palmer, Secretary, Newark, Del.
- Massachusetts Veterinary Association. American House, Boston, Mass. December 26, 1923. Dr. C. H. Playdon, Secretary, Reading, Mass.
- Pennsylvania Annual Conference for Veterinarians, University of. Philadelphia, Pa. Jan. 8-9, 1924. Dr. Louis A. Klein, Dean, 39th St. and Woodland Ave., Philadelphia, Pa.
- New Jersey Veterinary Medical Association of. Newark, N. J. Jan. 10, 1924. Dr. P. B. Silvester, Secretary, Princeton, N. J.
- Ohio State Veterinary Medical Association. Deshler Hotel, Columbus, Ohio. Jan. 9-10-11, 1924. Dr. Harry T. Moss, Secretary, 640 S. Main St., Dayton, Ohio.
- Cornell Veterinary Conference, Ithaca, N. Y. January 10-11, 1924. Dr. V. A. Moore, Dean, N. Y. State Veterinary College, Ithaca, N. Y.
- Virginia State Veterinary Medical Association. Richmond, Va. Jan. 10-11, 1924. Dr. Geo. C. Faville, Secretary, Hampton, Va.
- Iowa Veterinary Association. Hotel Savery, Des Moines, Iowa. Jan. 15-16, 1924. Dr. E. R. Steel, Secretary, Grundy Center, Iowa.
- Iowa Practitioners' Short Course. Iowa State College, Ames, Iowa. Jan. 17-18, 1924. Dr. C. H. Stange, Dean, Ames, Iowa.
- Oklahoma State Veterinary Medical Association. Huckins Hotel, Oklahoma City, Okla. Jan. 16-17, 1924. Dr. L. B. Barber, Secretary, Live Stock Exchange Bldg., Oklahoma City, Okla.
- Wisconsin Veterinary Medical Association and Veterinary Short Course. College of Agriculture, Madison, Wis. Jan. 29-30-31 and Feb. 1, 1924. Dr. O. H. Eliason, Secretary, Madison, Wis.

HOG CHOLERA CONTROL VERSUS PREVENTION¹

By I. K. ATHERTON

College Park, Md.

The history of hog cholera covers far more than a span of human life. Investigations regarding it have consumed years in the laboratory and field. This disease has proved so baffling that scientists have been obliged to grope their way in contending with it. Much of the knowledge regarding it has been "stumbled onto," so to speak. Much has been written on the subject, and one idea after another has been suggested, only to be discarded in a large percentage of the instances. For these reasons I find myself, to a great extent, much dependent on others for my information. I have culled from books, pamphlets, newspaper articles and personal experience in the preparation of this paper, which recalls Kipling's verses setting forth the practice of writers generally.

*"When 'Omer smote 'is bloomin' lyre,
He'd 'eard men sing by land and sea;
An' what he thought he might require,
'E went and took—the same as me!*

*"The market girls an' fishermen,
The shepherds an' the sailors too,
They 'eard old songs turn up again,
But kep' it quiet—same as you!*

*"They knew 'e stole; 'e knew they knowed.
They didn't tell, nor make a fuss,
But winked at 'Omer down the road,
An' 'e winked back—the same as us."*

I sincerely trust that you will wink down the road at me as I pass on.

HOG CHOLERA CONTROL

I have often wondered what the promoters of the idea had in view. Control has been the indefinite aim of hog cholera workers for years, yet I doubt whether a single person who used the term has a clear conception of just what would be accomplished by a fulfilment of their efforts. It is certain that

¹Presented at the sixtieth annual meeting of the American Veterinary Medical Association, Montreal, Canada, August 27-31, 1923.

"Hog Cholera Control," as we now understand the term, has not been universally successful; in fact, satisfactory results have probably never been attained. Neither do I believe attempts at control will ever prove the solution of the hog cholera problem, for, under a broad conception of the subject, any movement that does not have eradication in view cannot be expected to prove eminently successful or generally satisfactory.

Control work as almost universally conducted has had two phases, the prevention of the spread of the infection from the original or primary outbreak and the protection of hogs by immunization.

It is admitted that much financial benefit to hog growers is accomplished if the spread of the infection from one farm to another can be stopped, but this does not eliminate the original sources of infection. It has been our experience, in Maryland, that with a limited number of outbreaks, the spread of the disease from original outbreaks can easily be prevented. During the year 1922, in 330 of the 354 primary outbreaks, there was no spread of the disease from original outbreaks. In no instance did a secondary outbreak occur when a new center of infection was promptly reported, so that it could be given attention. In fact, this is true of the entire history of the hog cholera work in the State.

Some might consider these results very satisfactory, but they were not. Notwithstanding the fact that these 330 outbreaks were reported in time to prevent the spread of the infection to other farms, the disease had already made such progress in the infected herds before it could be checked that approximately 47 per cent of the swine on these premises were lost. Surely control at its best is not a satisfactory solution of the hog cholera problem. Further, in the remaining 24 primary outbreaks, as will always be the case in a certain percentage of the instances, there were delays of weeks and months before the authorities learned of their existence. As a consequence, the infection was spread from these centers resulting in 235 secondary outbreaks with corresponding losses.

There was nothing gained in combating the disease other than the valuable information that was obtained from studying the outbreaks and saving some hogs. The same fight that was made last year must be made again this year, and continued until sanitarians and stock raisers can see their way clear to inaugurate and rigidly carry out sanitary measures which will

not only stop the spread of the disease to adjacent herds, but prevent the establishment of new centers of infection.

Possibly some might be of the opinion that, compared with the Corn Belt, hog-raising is not carried on extensively in Maryland; that the conditions there are more favorable for preventing the spread of the disease from original centers of infection; therefore the results obtained in one state, Maryland, are not indicative of the conditions in the principal hog-growing states or the possibilities throughout the country in preventing the spread of the disease from original outbreaks.

There might be others, too, of the opinion that the results which I have stated as being unsatisfactory in Maryland are due to the fact that the double treatment is used in that state only to a limited extent.

While considering conditions in Maryland, it should be noted that Maryland stands eighth among the states in the number of the hogs per square mile, and she stands twenty-fifth in the percentage of losses. It is true that the double treatment is probably used less in Maryland than in any other state.

The latest Government and state reports available show that hog cholera is still the most destructive disease of swine. The report of the Committee on Hog Cholera Control, which was made at the last meeting of the U. S. Live Stock Sanitary Association, held in Chicago, early in December, 1922, is most interesting, and we believe is good evidence that we are not obtaining the results believed by many through our present methods and efforts at controlling hog cholera. This report compared one five-year period (from 1907 to 1911 inclusive), when practically nothing was done to control hog cholera, with another period (from 1917 to 1921 inclusive), when approximately \$7,500,000.00 was expended annually for serum, virus, veterinary fees and control work. The comparison of the losses for these two periods shows a difference of only .2 of 1 per cent less during the latter period. It might be well to explain that the first of these two periods just preceded and the other just succeeded the last "wave" of hog cholera which this country experienced.

Our apparent inconsistency in dealing with hog cholera, compared with foot-and-mouth disease, is to my mind very interesting. Not only that, but it would appear that it should be given serious consideration, for undoubtedly it is responsible for the fact that we in our fight against hog cholera are making no headway.

We know nothing more about the causative agent of foot-and-mouth disease than we do about that of hog cholera. Both diseases are caused by filterable viruses. In fact, I believe we have more definite knowledge concerning hog cholera than we have of foot and-mouth disease, yet while we promptly eradicate foot-and-mouth disease on the appearance of an outbreak and pat ourselves on the back for the accomplishment, we continually permit our swine industry, as a matter of course, to suffer annual losses of from thirty to seventy-five million dollars from hog cholera.

In outbreaks of foot-and-mouth disease we take every precaution to eradicate centers of infection. We even go so far, and I believe rightfully, as to slaughter all susceptible animals on the farm where the disease exists, and then thoroughly clean and disinfect the premises. We employ such radical measures for the reason that we realize that we must eliminate centers of infection in order to eradicate an outbreak effectually and permanently. After eradication has been accomplished, we close every known avenue by which we think the infection possibly might again be introduced.

In our dealings with hog cholera we take no such precautions. Farmers and stock raisers are constantly practicing methods of swine management which are positively known to be responsible, not only for starting but maintaining centers of infection. I regret that instances are legion where sanitarians and officials charged with the control of the disease have not only permitted but urged these practices. I refer to *garbage feeding; movement of sick or exposed hogs; and the abuse of the double treatment.*

GARBAGE FEEDING

By this term I mean the feeding of any unsterilized product which might contain infected pork, including table refuse and kitchen swill from the private home. In Maryland we hold this factor apparently responsible for 82 per cent of the new outbreaks. It is regrettable that we do not have more data regarding the number of outbreaks in other states started from feeding garbage. Some contend that the matter of garbage feeding is of more importance in the Eastern States than any other part of the country, which may be true. However, the state veterinarian of a western state informed me that the feeding of garbage is the greatest source of trouble in his state. It is a matter of record that garbage is the principal source of

infection in Canada. I believe that when more attention is given to this subject the information obtained regarding this agent as a source of hog cholera infection will prove astonishing and enlightening.

It may be true that there are more garbage-feeding plants in the East than in the Corn Belt States, but from my observance in different sections of the country it seems evident that the farmers in the Central States depend more on packing-house products for table use than do the farmers of Maryland, and other Eastern States. If this be true, it is very probable that a far larger number of the outbreaks of hog cholera on the farms of the Central States might be traced to this source of infection than is now attributed to it. Generally when the house-wife is trimming cuts of fresh and cured meat for cooking, bones, rinds or scraps are thrown into the swill-pail or garbage-can, and later they are fed to the hogs.

We have been surprised through our investigations to learn the number of outbreaks of hog cholera on farms in Maryland that seem to be traceable to no other cause than infected pork that reached the hogs by way of the swill-pail. One instance is recalled where the hogs were in a pen two feet above the ground. The pen was so enclosed that chickens could not enter. This was done because some of the hogs were chicken eaters. There were no sick hogs in the locality. There had been no hogs brought to the premises for the preceding six months. However, there was a clear history of pork being frequently purchased, and bones, rinds and scraps being fed to the hogs in the swill.

It is astonishing how frequently the feeding of garbage to hogs is recommended, and often without one word of warning relative to the dangers that might result from it. Only recently an article was noted in one of our foremost stock papers, in which a swine husbandman dilated on the advantages of garbage-feeding. The gains mentioned were fabulous, and the information given would lead one to believe that it was a get-rich-quick scheme without a "fly in the ointment." The experiment on which this article was based was conducted for only twenty-four days.

Claims are often made that unsterilized garbage may safely be fed to hogs if they have been immunized by the double treatment. For the sake of argument we will admit that this may be true. However, in our experience we have seen many

"breaks" with heavy losses in garbage-fed hogs to which the double treatment had been administered under the most favorable condition possible in such places.

No matter if hogs can be immunized so that they may be safely fed garbage, the fact remains that garbage, especially city, hotel or restaurant garbage, contains infected pork practically at all times. The bringing of this product on the place certainly results in infected premises. In our dealings with foot-and-mouth disease, one of the arguments that was presented in favor of slaughtering sick and exposed animals was that in the maintenance of a long quarantine it was practically impossible to prevent the spread of infection. If that be the case, then garbage-feeding plants must remain a source of danger year in and year out. At any rate, to maintain a center of hog cholera infection is inconsistent with sanitation, and is one of the inconsistencies which we practice in the guise of hog cholera control.

MOVEMENT OF SICK AND EXPOSED HOGS

Usually this is regarded only in the light of the introduction of new stock for improving the breed or replenishing the herd. However, it has a much broader significance. It is the general practice, when hog cholera makes its appearance in a herd, to cull out the animals that are fit and apparently free from the disease and ship them to market for slaughter. Probably this practice is followed without any thought of wrong-doing on the part of the owners. It has been demonstrated that there are three days, on the average, in the incipient stage of hog cholera, when the affected animals show no evidence of the disease, yet during this time the excretions from the body, or pieces of pork from the carcass are infectious. It is due to the practice of shipping such hogs to market that infected pork is so widely distributed, carrying with it the active virus of hog cholera.

I might be considered a little previous at this time in advocating this procedure, yet I believe that the time will come when an outbreak of hog cholera occurs on a farm the owner will be obliged to keep all the infected herd on his premises until it has recovered; or if he is permitted to ship, then it will be done under rigid police regulations, and all carcasses of such animals will be considered as infectious, and will be permitted

to go out from the packing-house only after the meat has been sterilized.

The introduction of new stock into well herds is generally recognized as being a common cause of outbreaks of hog cholera. In Maryland this practice is believed to be responsible for approximately 15 per cent of our new outbreaks, and it is probably much larger in some other states.

One of the greatest sources of danger, especially in the Corn Belt States, is the importation of stocker hogs, which are shipped from public stock yards immediately after the double treatment has been administered. It has been reported that in one year there were 435 carloads of such hogs shipped into a certain state, and "breaks" occurred in 431 of them.

An official in charge of hog cholera work in one of the Central States makes this statement: "Many feeders are afraid to handle stock-yard feeders, for it appears that they not only bring cholera with them, but other diseases also, which makes raising pigs on the farm a hazardous occupation."

It is possible that many farmers have not been disheartened by the "breaks" which they experienced, as their losses in the aggregate may have been small. However, the infection, no matter how it may have been introduced into free territory, is capable of dissemination, and we surely are inconsistent when we allow hog cholera infection to spread by such methods, when under no circumstances would we permit an animal suffering with, or exposed to foot-and-mouth disease to be introduced into another herd.

ABUSE OF THE DOUBLE TREATMENT

So far as the double treatment is concerned, I have not the slightest desire to condemn it when it is used under proper precautions. Its worth is recognized, and under existing circumstances its use is undoubtedly absolutely necessary; but I do not know of any other biologic of proven value which has been so abused as the combination of anti-hog cholera serum and hog cholera virus. In fact, there is no doubt that by the improper use of virus and serum, or rather their abuse, that hog cholera has not only been introduced into, but centers of infection have been maintained in, localities where it probably would not otherwise have obtained a foothold. I believe also that in many localities more harm than good has been done through the administration of virus. Even under the best of

conditions we sometimes get discouraging and unexplainable "breaks."

In Maryland the simultaneous treatment is wisely controlled, and, so far as starting new centers of infection is concerned, it appears to be a small factor. Only about 3 per cent of our new "breaks" could be traced to that source. However, there is comparatively little of the virus used in the state. The greatest harm that it is doing, in my opinion, is, where, by the use of the simultaneous treatment, many people consider garbage-feeding can be made safe, and thus maintain centers of infection with more or less frequent "breaks."

Last winter I heard a veterinarian representing one of the large serum-producing companies make the statement that there were more "breaks" following the use of the double treatment in the last two years than ever before. Recently, in a periodical devoted to swine-raising, a well known author makes this statement: "About the usual complaints have been received during the last six weeks relative to difficulties following hog cholera vaccination." A report received recently from an inspector in charge of hog cholera work in one of the Corn Belt States contains this statement: "Approximately 25 per cent of our hog cholera diagnoses were post-vaccination troubles, and this continues to be the principal trouble here. It is not a matter of getting them to vaccinate, but to save hogs after vaccination."

Our most competent authorities seem to be divided in their opinions regarding these vaccination "breaks." Some insist that a large percentage of the breaks are diseases other than hog cholera, while others maintain that they are practically all hog cholera. One eminent veterinarian said: "Most 'breaks' can be prevented, but some can not. Let's prevent those we can, and call the others hog cholera. That is what they are." Although opinion is divided to a certain extent regarding these "breaks," it is admitted that a certain percentage of them are undoubtedly hog cholera.

I believe one of the greatest factors in the abuse of the double treatment is its administration by incompetent persons. Just what might be considered competency in the administration of the double treatment is probably an open question. One thing is certain—the possession of a diploma from a veterinary college does not always answer the purpose. Again, I believe if competency is to be considered that laymen are certainly barred.

Recently I received a communication from a farmer in Maryland who wanted to know how he could learn to immunize hogs against cholera. I advised him to take a four-year course in a recognized veterinary college, and I believe that is the only way whereby he could properly be trained to handle hog cholera virus. Among other abuses of virus is its use in free territory; its use in sick herds without proper diagnosis; its administration without every precaution being taken to prevent the spread of the infection in case any of the animals should break; where, by its use, centers of infection might be maintained.

There is no doubt that centers of infection are not only started but maintained by the abuse of the double treatment, and this is certainly inconsistent with the principles of sanitation. An outbreak of hog cholera, even though it be started by virus which was obtained in a bottle, is just as dangerous to a locality as if the infection was introduced in any other way. Wouldn't it appeal to you that dissemination of the disease by abuse of the double treatment is an inconsistency, especially when we will not permit scientists in this country to experiment, even under ideal conditions, with foot-and-mouth disease virus?

The last and most expensive outbreak of foot-and-mouth disease, which the United States has experienced, made its appearance in the summer of 1914. The disease was spread from the Atlantic coast to the Pacific coast, and appeared in twenty states within thirty days. It must be admitted that this was wide-spread dissemination of the infection. It cost \$9,000,000.00 to rid the country of the malady. Many considered this an enormous cost, yet it was only approximately \$2.75 for each \$1,000.00 worth of cattle, sheep, and hogs on farms in the United States, January 1, 1915. Furthermore, the country has been free from the infection for eight years. Good business, wasn't it?

Figuring from the date of the 1914 outbreak of foot-and-mouth disease, hog cholera has to date cost the farmers of the United States in losses of hogs alone, over \$415,000,000.00. To this sum should be added another \$45,000,000.00, as a low estimate, of the amount spent on serum, virus, veterinary fees, control work, etc. This is approximately \$750.00 for every \$1,000.00 of hogs on our farms January 1, 1915. We certainly cannot pat ourselves on the back for the business sagacity we have exhibited in dealing with hog cholera.

As sanitarians and officials, we are charged with the responsi-

bility of protecting the swine industry. Therefore, are we justified in permitting ourselves to be held further accountable for these appalling losses? The answer is already asserting itself in the negative. This may be sensed in a measure by the growing sentiment in favor of the inauguration of eradication measures. Then again, because of dissatisfaction with present conditions, farmers and stock raisers in many localities are demanding a change. As is usually the case when dissatisfaction is rife, they do not know what is best for them, but they are clamoring to take in their own hands the only method of protecting their hogs which they have been taught. Such a procedure cannot be regarded hopefully, for the reason that it will necessitate their employing virus and serum, agents concerning which they know little.

The thought is, What are we going to do about it? I believe the following excerpt from a recent editorial in one of our leading stock journals will give food for thought along this line.

"Fortunately a large and growing section of the public which employs veterinary practitioners is beginning to regard these men as trained, competent and necessary aids in keeping valuable live stock in health. The prevention of diseases and the maintenance of health are now considered by leading breeders to be more useful as veterinary services than the treatment of diseases. Veterinarians, therefore, are being employed to advise and instruct stockmen in regard to animal sanitation and hygiene. An ounce of prevention is worth a ton of 'cures.' The best practitioners recognize this fact in their professional work, and their attitude challenges and evokes the hearty co-operation of enlightened breeders."

We have undoubtedly arrived at the parting of the ways on the hog cholera question. We have tried every method of controlling the disease, and heavy losses as well as dissatisfaction continue to be the results.

Let us take the term "Hog Cholera Control," transpose it and add the causative agent. We now have "Control of the Hog Cholera Virus." This is not only an entirely different proposition but the solution of the problem as well. By the application of the principles of sanitation, the prevention of the introduction, the harboring and the spread of the infection can be accomplished. By this method hog cholera can be eradicated as we eradicated foot-and-mouth disease. The plan is feasible, and the cost will be slight as compared with the enormous losses which the disease is causing.

BACTERIA OF THE GENITAL TRACT OF MARES AND THE SEMEN OF STALLIONS AND THEIR RELATION TO BREEDING EFFICIENCY¹

By W. W. DIMOCK and ETHEL SNYDER

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The bacteriological findings reported in this paper constitute an important part of the work done on a research project: "The Pathology and Bacteriology of the Reproductive Organs of Mares and Their Relation to Sterility," now under way at the Kentucky Agricultural Experiment Station. The findings are the result of cultural work on the reproductive organs of mares, the semen of stallions and the tissues of aborted fetuses and of foals that died during the first few days or weeks after birth.

The investigation was undertaken with full appreciation of its scope and complexity, and of the time, cost and diligent work required if results of a reliable, worthwhile nature were to be a reality. Much time has been given to culturing the genital tract of barren mares and the identification of the microorganisms isolated therefrom. Therefore, that part of the project dealing with the bacterial flora of the reproductive organs and related material, due to the nature of the work and abundance of available material, has advanced beyond any other.

To date, cultures have been made from the cervix and uterus of three hundred and five living mares; many of them have been under observation for two years, and have been cultured repeatedly with results which check exceedingly well and at the same time show the persistence of the infecting microorganisms, even in mares that have been under treatment. After checking the bacteriological findings with the appearance of those structures of the genital tract accessible for clinical study, it has been observed that the clinical pathology is in many cases indicative of the type of microorganisms that will be found upon bacteriological examination. Thus the mares fall into rather distinct groups, according to the bacteriological findings and the clinical picture which they present. The groups are as follows:

¹Presented at the sixtieth annual meeting of the American Veterinary Medical Association, Montreal, Canada, August 27-31, 1923.

Group One: Those mares from which there was no bacterial growth on the medium inoculated and which, clinically, appeared to be carrying no infection in the genital tract. This group included one hundred fifty-three, or approximately fifty per cent of the entire number examined. The mares in this group may be subdivided into the following classes: (a) maiden mares; (b) mares that have been bred one, two, three or more seasons but failed to conceive; and (c) mares that have had foals, but have been barren for one or more years previous to the time of taking cultures. Classes (b) and (c), taken together, constitute a class of mares barren from various causes other than infection.

Group Two: Those mares from which a streptococcus was isolated from the cervix and uterus. This group includes eighty, or approximately twenty-six per cent of the entire number cultured. Fifteen of the eighty yielded a pure culture of a streptococcus. This group, although including only twenty-six per cent of the total number of mares studied, represents fifty-three per cent of the entire number found, on the basis of our examination, to harbor microorganisms in the cervix and uterus. They present by far the most serious problem in sterility with which we have come in contact. These mares, clinically, show unmistakable evidence of inflammatory changes, either acute or chronic in nature, often accompanied with greatly increased exudation, especially the chronic cases.

Group Three: The culture medium inoculated from the cervix and uterus of mares included in this group has shown, upon examination, two or more microorganisms. Seventy-one, or approximately twenty-three per cent of the entire number cultured, fall into this group. The mares were not entirely clean, as in group one, neither did they have, with possibly a few exceptions, the characteristic appearances of those showing acute or chronic inflammatory changes resulting from streptococcus infection as in group two. From six of these mares *Bacillus pyocyaneus* was isolated. After further study of these mares, it may be possible to separate them into rather distinct classes on a basis of the infecting agent.

METHOD OF TAKING CULTURES

The mare to be cultured is confined, the tail bandaged and held to one side, the external genitals washed with soap and water and rinsed with antiseptic solution. The speculum is inserted carefully into the vagina, adjusted and opened suffi-

ciently to permit a good view of the cavity. A flash light or an electric light may be used if artificial light is necessary. In the average or normal mare the os uteri will be nearly on a line with the lower prong of the speculum when held in a horizontal position. A five-inch platinum needle, attached to a twenty-inch holder, is used for taking the cultures; it is flamed, passed into the vaginal cavity and through the os uteri into the uterus and moved back and forth two or three times. Upon removing the needle successfully from the vaginal cavity, the tube of culture medium is inoculated. The practice has been to inoculate two tubes, taking fresh-material for each. With a little practice, cultures can be taken in this way very accurately. Unfavorable surroundings should be avoided as far as possible, and every sanitary precaution observed. In case a mare does not stand quietly, or where an irregular or tortuous cervix is encountered, making it impossible to pass the platinum needle, the hand, protected by a surgeon's glove, may be used for collecting exudate from the uterus. The hand is inserted and withdrawn as carefully as possible, and the material collected and transferred to the culture tubes. We have in this way often secured quite as satisfactory results as from the use of the platinum needle. However, it is not to be recommended except in case of necessity.

For taking cultures in the field, agar slants have proved to be the most satisfactory and convenient form of culture medium to use. The medium is prepared from fresh beef, and contains one per cent of peptone and two per cent of agar, titrated to pH 7.6. This seems to be well adapted to the organisms encountered in this work. If properly prepared, the medium will be clear and transparent, thus making it possible to detect even the most minute colonies which may develop on the surface.

Inasmuch as the cultures are taken either in stables or out in the open, often under adverse conditions, such as dust and wind, it is evident that they can not always be free of contamination. The possibility of contamination has always been considered, and no doubt accounts for the occasional presence of such bacteria as *B. subtilis* and other spore-producing bacilli of a similar nature, together with numerous chromogenic micrococci, all of which are readily recognized as microorganisms whose natural habitat is that of air, dust, etc., and to which there has been no attempt made to give a specific identity, or to consider as factors in genital infections. However, considering

the hundreds of cultures that have been taken, it is only in comparatively few cases that such bacteria are found. On the other hand, certain organisms are recovered so consistently from the same mares that no doubt remains but that such bacteria have gained a foothold in the tissues and constitute an infection.

The following list includes those microorganisms that have been isolated from mares and identified:

<i>Streptococcus genitalium</i>	<i>Sarcina subflava.</i>
<i>Bacillus pyocyaneus.</i>	<i>Bact. pyogenes.</i>
<i>B. coli.</i>	<i>B. viscosus.</i>
<i>B. intestinalis.</i>	<i>B. subtilis.</i>
<i>M. pyogenes albus.</i>	<i>M. aureus.</i>
<i>M. viridis.</i>	<i>M. roseus.</i>
<i>B. alcaligenes.</i>	<i>M. candidans.</i>
<i>M. simplex.</i>	<i>M. citreus.</i>

In addition to these, several different bacilli belonging to the colon-typhoid group have been isolated. One of these bacilli, in particular, has occurred frequently. It is a short, thick rod, occurring singly and in pairs, is actively motile and does not stain by Gram's method. The colony on agar closely resembles that of *B. abortivo-equinus* in appearance. It is round and wrinkled at the center, with a pressed-out look at the edge, and when several days old is of such a consistency that the entire colony may be pushed intact over the surface of the agar.

Other bacilli encountered closely resemble *B. coli*, but differ from it in one or more characteristics. Some of the bacilli will no doubt prove to be organisms which have already been studied and isolated in other lines of research. However, others are disclosing characteristics for which we can find no description in bacteriological literature, and so are more than likely new and have yet to be classified and named.

The presence of the *Streptococcus genitalium* in the genital tract of mares has a very definite pathological effect upon the cervix and uterus. Inflammatory changes resulting from the presence of other microorganisms are far less distinct, and their relationship to sterility or barrenness has as yet not been determined.

Twenty-one mares have been killed and the reproductive organs studied post mortem. The ovaries, fallopian tubes, horns and body of the uterus were carefully cultured in each case. Five of this number were not cultured during life, while

the remaining sixteen were. From eleven no bacterial growth was obtained from any part of the reproductive system. Six of the ten, from which some growth was obtained, yielded either *B. coli* or *M. pyogenes albus* or both, from one or more organs, as shown in the accompanying chart. The other four showed a pure culture of *Streptococcus genitalium*. In one case it was obtained from the body of the uterus only, while in the other three cases it was isolated in pure culture from the body of the uterus and both horns. In one of these cases it was also obtained in a mixed culture from the bladder and the ureters, both organs showing extensive inflammatory changes.

Four of the mares that gave negative bacteriological findings upon post-mortem had been positive streptococcic mares during life. Cervicitis and metritis were also plainly evident. It is believed that bacterial growth failed to develop on the tubes inoculated from these mares, because of the condition of the medium used.

CHART SHOWING BACTERIOLOGICAL FINDINGS FROM TWENTY-ONE MARES
KILLED FOR POST-MORTEM

Mare	Right O.	Left O.	R. Tube	L. Tube	R. Horn	L. Horn	Uterus
717	<i>M. pyogenes albus</i>	<i>M. pyogenes albus</i>	—	—	—	—	<i>M. pyogenes albus</i>
767	—	—	<i>B. coli</i>	<i>B. coli</i>	—	—	—
768	<i>B. coli</i>	—	<i>M. pyogenes albus</i>	—	—	—	—
799	—	<i>B. coli</i>	—	—	—	<i>M. pyogenes albus</i>	—
1006	<i>M. pyogenes albus</i>	—	—	—	—	—	—
1041	—	—	—	—	—	<i>B. coli</i>	—
1532	—	—	—	—	—	—	<i>Strep.</i>
1479	—	—	—	—	<i>Strep.</i>	<i>Strep.</i>	<i>Strep.</i>
957	—	—	—	—	<i>Strep.</i>	<i>Strep.</i>	<i>Strep.</i>
1572	—	—	—	—	<i>Strep.</i>	<i>Strep.</i>	<i>Strep.</i>

Mares Nos. 806, 841, 893, 977, 1093, 1533, 936, 1515, 1560, 1655 and 918 were all negative bacteriologically upon post-mortem examination.

Cultural work on the semen of stallions has been confined very largely to semen collected in culture tubes directly from the urethra, following service. In a few instances cultures were made from the urethra of stallions before service and from the

urethra of a few geldings and young stallions that had not been in service. Although the stallions were all in good physical condition, several showed a considerable number of pus cells in the semen, and in one the pus cells were very numerous. This latter stallion revealed enlarged seminal vesicles upon rectal examination. A few were so-called "shy breeders," and the percentage of mares that conceived from service to them was decidedly below the average.

During the breeding season of 1922, February to June, inclusive, the semen of fourteen stallions was cultured. From twelve a streptococcus was isolated and identified as *Streptococcus genitalium*. No streptococci were found on the culture tubes from the other two stallions. During the breeding season of 1923, February to June, inclusive, the semen of twenty-six stallions was cultured. A streptococcus was recovered from twenty-four. Two were negative. *Streptococcus genitalium* was positively identified from twelve. From five the streptococcus isolated was not the *Streptococcus genitalium*. From seven no attempt was made to identify the streptococcus isolated. Six of the stallions cultured in 1923 had been cultured in 1922. The streptococci which did not prove to be the *Streptococcus genitalium* in some cases differed from it only in their ability to ferment carbohydrates, while others differed also in their action on blood.

Since January 1, 1923, twelve fetuses (nine aborted and three stillborn) and nine colts, the oldest of which was three weeks, have been studied. Of the twelve fetuses, *Streptococcus genitalium* was isolated from five; *B. abortivo-equinus* from one; while the bacteriological findings from the remaining six were negative. Of the nine colts, *Streptococcus genitalium* was isolated from five. A non-hemolytic streptococcus was obtained from the lung of one which was killed by accident, while the remaining three were so badly degenerated that contamination outgrew other organisms of importance that might have been present. The dams of three of the colts and fetuses from which *Streptococcus genitalium* was isolated were found, upon examination, also to be infected with the same organism. Two were cultured and found negative. No opportunity was afforded to obtain cultures from the other five. From five other mares that were cultured, following foaling, *Streptococcus genitalium* was obtained from each. Three colts from these mares were apparently normal; one colt

showed clinical evidence of "joint ill," but lived. The other died on the second day following parturition, but it was not cultured. Two of the mares that had apparently normal foals were bred on the ninth day but did not conceive, and during a later estrual period were cultured and found to be infected with a streptococcus. The other three mares were cultured on the sixth day following parturition, at which time *Streptococcus genitalium* was isolated.

BACTERIAL FINDINGS FROM FETUSES, COLTS AND DAMS

	<i>Streptococcus genitalium</i>	Non-hemolytic streptococcus	<i>B. abortivo-equinus</i>	No growth	Contamination	Total
Fetuses	5	0	1	6	0	12
Colts	5	1	0	0	3	9
Dams	3	0	0	2	0	5

CULTURAL CHARACTERISTICS OF THE STREPTOCOCCUS GENITALIUM

Hemolysis: On fresh blood-agar *Streptococcus genitalium* is actively hemolytic.

Morphology and Staining: This streptococcus consists of chained cocci, occasionally slightly elongated. The individual segments are usually equidistant, but sometimes are so arranged that they give the appearance of a chain of diplococci, end to end.

In preparations made from the exudate from the uterus and from the blood of experiment animals into which the streptococcus has been injected, the chains are short, seldom consisting of more than four or five elements. Grown on artificial media they form long, tangled chains of hundreds of elements in the water of condensation or in bouillon, but on the surface of serum agar the chains are short. They stain well with ordinary stains and are decolorized by Gram's method. No capsules have been noticed.

Isolation: The isolation of this streptococcus is comparatively easy as it grows well in the initial culture on plain beef-agar, and, if there is not too much other growth, the colonies are readily recognizable and can be picked off in pure culture.

Cultivation: *Streptococcus genitalium* grows best at 37°, and develops slowly or not at all at room temperature.

In order to be kept alive after the second generation, it must be transferred to a medium containing some serum. Luxuriant growth is produced on the beef-agar described above, to which has been added one per cent dextrose and ten per cent fresh, sterile horse-serum. It is necessary to draw serum and add it to the melted, cooled agar under absolutely sterile conditions, as the agar is not heated after the serum is added.

On agar slants, growth develops within twenty-four hours. The colonies are very small, ranging from an almost invisible speck to the size of a pin-head. They are slightly milky or clouded in appearance. On blood-agar plates, around each colony, is a clear zone of hemolysis. The colonies when scattered grow to the size of a pin-head, and when examined with a hand lens look somewhat like dewdrops. Sometimes a concentric ring is discernible, midway between the center of the colony and its outer edge. In gelatin-stab cultures no growth is visible.

In broth, to which has been added twenty per cent fresh, sterile horse-serum, there is abundant growth of a flocculent nature in the bottom of the tube, with a clear supernatant fluid above. This flocculent growth is composed of exceedingly long chains of cocci. Milk is slowly acidified but rarely coagulated.

Fermentation: *Streptococcus genitalium* ferments lactose and salicin, but fails to ferment mannit. No gas is produced.

Resistance: It is readily destroyed by heat or sunlight, and dies out within ten days unless transferred.

PATHOGENICITY TESTS

Streptococcus genitalium is not pathogenic for rats and guinea pigs, but is pathogenic for rabbits. Subcutaneous inoculations in rats, and subcutaneous, intraperitoneal and intravenous inoculations, together with feeding experiments, on guinea pigs, failed to produce any ill effects.

One-fourth cubic centimeter (approximately five billion organisms) of a virulent strain, injected intravenously, will kill a large rabbit in from twelve to thirty-six hours, depending on how recently it has been passed through an animal.

One cubic centimeter of the same culture, injected subcutaneously into a rabbit, does not kill, while the same amount given intraperitoneally, kills in from four to five days, and when fed, causes death in a week to ten days.

By accident, a healthy rabbit was allowed to eat on a rabbit that had just died from an injection of the streptococcus, and

so got some of the dead rabbit's blood. The second rabbit was dead in twelve hours, and the organism was recovered from its blood. This, of course, was a particularly virulent strain, as it had just been passed through several animals and was ingested without having been on artificial media since its passage.

Four different injections of a strain that had been in the laboratory for some time without animal passage were made in the neck of a mare. The injections consisted of one-half, one, two, and four cubic centimeters, given every two days. After the fourth injection, a swelling appeared at the point of injection, and a large running abscess developed, but healed up readily.

As a result of our bacteriological studies of the genital tract of barren mares, cervicitis and metritis, due to streptococcal infection, stand out as the most serious conditions to be dealt with. The streptococcus which we have isolated and studied is, from all available evidence, a distinct variety. When present in the uterus, it becomes an exceedingly persistent infection, characterized by inflammation and exudation. Upon clinical examination, the pathological picture presented is characteristic and distinct in many details, and in the very great majority of cases the clinical diagnosis will be confirmed by bacteriological examination. The lesions found upon post-mortem are equally distinctive. Therefore, when this streptococcus is considered from all angles—its cultural characters, its pathogenicity, its decided detrimental influence upon reproduction in mares, its presence in the semen of stallions and the part it plays as a factor in causing disease in fetuses and foals—it would seem to be sufficient to justify its designation by a specific name which so far as possible should signify its habitat and action in the animal body. It is believed that the name, *Streptococcus genitalium* meets this objective fully.

SUMMARY

1. Maiden mares and many barren mares apparently do not harbor microorganisms, in the uterus.
2. *Streptococcus genitalium* causes one of the most severe types of infection met with in the reproductive organs of mares.
3. Infection by *Streptococcus genitalium* results in a very characteristic type of cervicitis and metritis, usually terminating in sterility.

4. Mares harboring streptococcic infection frequently abort.
5. Colts carried full time by mares with streptococcic infection are often stillborn, die at birth or within the first few days or weeks from streptococcic infection.
6. *Streptococcus genitalium* is present in the semen of a large percentage of stallions examined.
7. Stallions harboring *Streptococcus genitalium* in their genital tracts may infect mares at the time of service.
8. Infection of mares at the time of service is probably dependent upon some predisposition.
9. *Streptococcus genitaliu* is often the principal infecting agent in navel ill, joint ill, peritonitis, and septicemia in very young foals.
10. In cases of abortion in mares, the differential diagnosis between contagious abortion, streptococcic abortion and accidental abortion is very essential.

DISCUSSION

DR. H. S. MURPHEY: In making the cultures, did you make more than one culture on different, successive days?

DR. DIMOCK: We always inoculated at least two tubes every time we examined a mare. In many cases we get our organism the first time. We considered that if we isolated a streptococcus on the first attempt that, when compared with the clinical condition, it was sufficient to warrant our assuming that this was the cause of the trouble.

On many mares, we went back as many as five times before we succeeded in finding a streptococcus. We went back that number of times because the case clinically suggested streptococcus infection, and yet we failed to get the organism until after many attempts. In some cases there was so much contamination that we were not sure that a streptococcus was there; in still other cases, where there was not contamination on the tubes, we apparently did not get the organism in the small amount of material secured on the needle.

There is another point, and it seems very peculiar in some ways, that in very chronic cases, while there was quite a quantity of exudate, our chance of recovering the organism was not as good as in the acute cases. It seems that in the acute cases the exudate contains the larger number of live organisms and that they grow readily, but in old chronic cases we frequently failed to find it; however, the clinical condition of the mare was such that we knew the organism must be there, and we would simply go back and repeat our inoculation until we found it.

DR. MURPHEY: Did you chart the time of any of these inoculations against the time in the estrous cycle, to know whether there was any correlation between the time of the cycle and the frequency of successful inoculations?

DR. DIMOCK: The mares carrying streptococcus infection show an excessive amount of secretion during the estrual period. During the interval, some of them would close up and appear to be nearly normal. I am speaking from memory, but I think that we do get the organism much more readily during the estrual period. We have not kept an accurate record on that point.

DR. MURPHEY: Mr. Chairman, I wondered if this might not come up, and I asked Dr. Rice's permission to use some unpublished data of his, simply because I think it has some relation to the question of securing infection from the genitalia.

In our work we used a speculum first, in the study of the estrous cycle,

and we had so much inflammatory reaction, and also from reagents, that we had to develop a technique of our own. That was given last year by Dr. Bemis, at the St. Louis meeting. We used a glass tube, lubricated by a slippery-elm-bark decoction. Dr. Rice made inoculations, step by step, in some of our early work, simply with the glass tube.

There is just one more thing that I want to state which seemed to me to be remarkable. During the first part of estrum, and until the heaviest of the flow, which is in post-estrus, the number of colonies increased rapidly. About three days after the post-estrus flow, the tract during the interval was nearly sterile, only an occasional colony would grow. Then, coincident with the beginning of the estrus flow, in what we have designated pre-estrus, the micro-organisms would increase.

It is evident that the genital flow is a factor in cleaning the genital tract in practically all of these cases.

DR. WARD GILTNER: Coming in late, I shouldn't discuss the paper, but I would like to ask if the paper shows sufficient evidence to make this organism a new species of streptococcus, and, in any case, I would like to suggest that we do not commit another crime against the rule of binomial nomenclature in giving this organism two specific names. I am sure Dr. Dimock, before publishing his paper, could coin a single specific name for the organism.

CHAIRMAN GOSS: There is one point that came up in this paper that I want to question. He refers particularly to the reaction of the culture media. I was wondering whether he had determined the reaction prior to sterilization or subsequently, as sterilization frequently changes the reaction considerably.

DR. DIMOCK: Answering Dr. Goss's question first, as stated in the paper, we do not sterilize the medium after we have added the horse serum. The medium is standardized before. The reaction is adjusted when the medium is made. It is then tubed, sterilized and the horse-serum is added, so that it is not titrated after sterilization.

CHAIRMAN GOSS: It is titrated prior to the addition?

DR. DIMOCK: Yes, sir.

CHAIRMAN GOSS: The question is, do you have much trouble in maintaining or getting your culture medium to that point of standardization? You have got to bring it to a certain point prior to sterilization. Can you maintain it during sterilization?

DR. DIMOCK: As I remember, we did not have trouble. The detailed cultural work was done by Miss Ethel M. Snyder, a very competent bacteriologist. I have been over these problems with her many times, and, while I am not as familiar with all the details as she is, I am sure she has never had trouble in controlling the reaction of the medium used.

There was one instance where we had used up the medium that had been tubed. Two or three mares were killed on short notice, and we had to go down to the cooler and take out for use culture medium that had been there some time. We did not run it through carefully, and we did not check it, as you say, after sterilizing. We did not get growth from these mares, and, as stated in the paper, they had been positive streptococcus cases before they were killed. We attributed the lack of bacterial growth to the condition of the medium, and we discarded it and made up some fresh and did not have further trouble.

I don't know that I ought to try to answer Dr. Giltner's statement. This streptococcus is different from any one that we have ever been able to find described in the literature, and, on that basis, we took the liberty to name it *Streptococcus genitalium*.

Ninety per cent of the silver fox pelts sold now are from ranch-bred animals.

One-fifth of the money spent for food is expended for dairy products.

A CHALLENGE TO THE VETERINARY PROFESSION¹

By PROF. H. BARTON and DR. R. L. CONKLIN,
MacDonald College, Quebec

It is a well known fact that the veterinary profession was born in a blacksmith shop. The village blacksmith, by virtue of his contact with horses and farmers, possessed an intimate knowledge and understanding of both that won respect for himself and confidence in his services. With the increasing density of population and the advancement in farming towards more intensive practice, the problems of live stock in health and disease soon developed an importance that demanded more treatment than the blacksmith could give. The call was then responded to by the "horse doctor" and a little later the professional agriculturist came to the aid of the farmer. Despite the joint interest of these two they traveled independently. Professional agriculture assumed the responsibility for agriculture as a whole and proceeded to establish itself upon a broad foundation of science and education. The "horse doctor" was gradually superseded by a man of more technical training, though not infrequently of less practical experience.

Thanks to our great pioneers, Andrew Smith, James Law and Duncan McEachran, veterinary practice was given the rank of a profession in North America. Through the energy and ability of these men it took its place in the field of study among the other sciences nearly three-quarters of a century ago. It was a healthy infant, born of good parentage, but because of strong competitors, destined to struggle for its existence. Notwithstanding, it made a normal early growth. The nature of its ambitions and the prevailing conditions made segregation more or less necessary for a time.

During the past fifty years, and particularly the last twenty-five, tremendous progress has been registered in all the sciences pertaining to agriculture. The veterinary profession may justly claim an appreciable contribution but perhaps we may ask ourselves to what extent the incentive has come from within and to what extent from without the profession itself. Has it, in itself, been the motive force in the elimination of the quack and blacksmith-horse doctor, who are not yet totally extinct? Has

¹Read before the sixtieth annual meeting of the American Veterinary Medical Association, Montreal, Canada, August 27-31, 1923.

it, to a man, striven to elevate the profession to the plane of its competitors? Have the veterinarians been seized with their responsibility to the live stock industry and have they been eager so to equip themselves that they could give the fullest and best service where opportunity offered? Or has the horse doctor been side-tracked by the progressive farmer himself, the profession been carried in too large a measure on the shoulders of other professions and the veterinarians content to secure a minimum of technical training, hang out a shingle or secure a stall, and proceed to earn a living?

The reason for our existence as a separate science is a laudable one, one of service of a high order, mercy to all helpless dumb creatures, protection of a great and vital industry, not to mention the human population. Are we living up to our opportunities and obligations? In the minds of some the answer may be debatable but to many the question is being asked. It may be worth while to examine ourselves briefly.

To take some things in the concrete: Since 1880 good progress has been made in the control and elimination of contagious and infectious diseases. Particularly noteworthy are the control and elimination of dourine from Canada, the elimination of the mange areas of the West, prevention of foot and mouth disease, rinderpest and Texas fever, the control of glanders and hog cholera. Recently the outstanding achievement has been that of the Health of Animals Branch in producing a serum which acts as a curative agent for glanders in man.

Educationally we have recently, but only recently, taken a step, which our sister profession took in 1904, and which, in view of the fact that many men have graduated in veterinary medicine who could not have qualified for entrance to agricultural colleges, would seem to have been unduly delayed.

In Canada alone we have approximately fifty-five million animals, valued at about four hundred and ninety million dollars, but with an annual loss from preventible diseases running into the millions.

The accredited-herd work is well under way, but tuberculosis is still taking its toll. This work has given the profession an opportunity and a boost, but it behooves the profession to leave no stone unturned in dealing with this comparatively new development. One aspect is its relation to the resident practitioner, who naturally suffers by the fact that an outsider undertakes to do something of which he apparently is incapable, and undertakes

to do it free. The time will come, probably, when the care of the herd as affected by this disease will revert to the home veterinarian and it would seem that the bridging of this gap might well merit early consideration. The test has been given a new standing, but that it has reached as satisfactory a station as it can be given would appear extremely doubtful. With such a golden opportunity for research, can it be said that full advantage of it is being taken.

And this suggests the question of research as a whole. In all the other professions, including agriculture, one hears much of research. To us, as it is to them, research is the fundamental stepping stone. And yet, in Canadian veterinary colleges, where research should center, there are no appropriations specifically for research, and there are no research staff members. Surely the responsibility must rest upon the profession. So long as we accept low standards of education and so long as we are content to have teaching staffs loaded with teaching and with no funds or assistance for research, we shall continue to suffer in comparison with other professions and to prompt the question already stated. Moreover we shall gradually be absorbed by agriculture, until what is left will be more segregated and helpless than ever. No one can question the merit and urgency of our case, but the objection of presenting it with sufficient emphasis devolves upon us. Professional agriculture, at the last annual meeting of its organization in Canada, placed itself on record in our support. Veterinary men cannot afford to rest until this imperative need is met. In every profession the status and point of view of the clientele must be given due regard. From the veterinary standpoint they are particularly important, because of the peculiarly close relationship between client and practitioner and, thanks to education, because of the progress in agriculture, as revealed in the attitude of the farmer as well as in his live stock practice. Whether such diseases as tuberculosis and abortion are becoming more widespread or not may be open to question, but among the farmers the appreciation of their seriousness is so much keener now than formerly that to them they seem more prevalent. Among live stock breeders one finds many well-informed men, men to whom even the most modern in veterinary practice is by no means foreign. Agricultural colleges have been training students and distributing them throughout the length and breadth of the United States and Canada for a period of nearly fifty years. There are now numerous institutions of agricultural

learning in these two countries and there is a huge organization of professional agriculture, engaged in professional work, all of which is either directly or indirectly having a bearing on the veterinary profession and demanding more of it.

Animal husbandry specialists, while not highly trained in veterinary science, are given some ground-work in it. They naturally have to do with animal problems, as they may be affected by health and disease. Many of them have opportunity for wide experience. They are in close touch with the live stock fraternity and hold positions of influence. Some of them have veterinary problems referred to them and while dealing with such is not their legitimate function, the fact that they receive them must be regarded, in some instances at least, as something of a reflection on the veterinarian. It may be argued that the explanation of this lies in the abundance of free advice that seems available. Undoubtedly there is truth in such a claim but the condition is one that the veterinarian should be able to meet. No animal husbandman of any standing wants to usurp the function of the veterinarian, but the veterinarian will do well to give the farmer and stockman more of what may be called general help, as it relates to his profession. He is too prone to content himself merely with the technical treatment of the case and to keep all explanation of cause and effect, and even of instructions, to himself. Were he better informed along general live stock lines, the health and disease questions, from a breeding standpoint, from a management standpoint, from a feeding standpoint, and from a housing standpoint, with all that they involve, he would be a more useful man to the farmer and more highly respected by him. It is not uncommon to find a veterinarian who so lacks even the lore of the old village blacksmith that he hardly knows how to approach a horse properly, something that the horseman is quick to discern.

Any contribution that the veterinarian may make by entering more fully into the farmer's position with him will prove a good professional investment. The highly skilled man, usually a specialist, perhaps can afford to be more independent, but invariably he is the man with the greatest fund of experience and the one most liberal with it. The average man too often depends entirely upon his operation or prescribed treatment for the popularity of himself and his profession. Nothing is to be lost, but everything is to be gained, by the enlightenment of the farmer.

The better informed a client may be, the more will he appreciate skill and ability.

Farmer psychology, often the product of circumstances, is as every successful practitioner can testify, somewhat different to that of certain other classes. If the veterinarian and the farmer are to be most helpful mutually they must understand one another. The veterinarian to the farmer ought to be more than a horse doctor, he ought to be a live stock specialist and a well informed citizen, ranking with the best in the community. The farmer to the veterinarian ought to be an associate, whose problems individually and collectively he shares, and a man whose knowledge of the live stock business he is interested in developing. Each has his counterpart to play and both are interested in a common prosperity.

The challenge to the veterinary profession today is higher standards, the production of highly-trained, broadly-developed men, who will persist as worthy students of a worthy calling and whose greatest problem shall be not so much the treatment of disease as security against it.

NEW BULLETIN ON BLACKLEG AND ITS PREVENTION

Immunization by vaccination is the only practicable and effective means of protecting animals against blackleg and eventually ridding pastures of infection, says the United States Department of Agriculture, in Farmers' Bulletin 1355, prepared by Dr. John R. Mohler, Chief of the Bureau of Animal Industry. This disease, which is found in all climates and altitudes, in practically all parts of the world, is the cause of great losses in this country, particularly in the great cattle raising and feeding sections of the West. In the new bulletin all of the important information on this disease has been brought together in concise form. The various methods of protecting animals against blackleg by vaccination are described. Formerly the Department of Agriculture manufactured and distributed blackleg vaccine, but, as a result of an act of Congress, this distribution was discontinued, beginning July 1, 1922.

Copies of the bulletin may be had, as long as the supply lasts, by writing to the Department of Agriculture, Washington, D. C.

THE BACTERIOLOGY OF PROGRESSIVE PNEUMONIA OF SHEEP*

By HADLEIGH MARSH

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In a previous article,² I have described a progressive pneumonia of sheep which occurs to a very considerable extent among the sheep of Montana and other northwestern states. The question of the etiology of this condition was not discussed to any extent at that time. However, we were convinced of the infectious nature of the disease, and feel that we have now accumulated sufficient data to warrant us in publishing a report on the bacteriology of this pneumonia. The etiology of the disease has not been definitely established, as the experiments which have been carried on in cooperation with Dr. Howard Welch, of the Montana Agricultural Experiment Station, are not yet complete, but we have studied an organism associated with the disease which we believe to be the primary bacteriological factor. The absolute proof of the causal relationship of any organism to this disease is very difficult and time-consuming, due to the low type of virulence of the organism and the slowly progressive nature of the disease. It is also almost impossible to reproduce experimentally the conditions which may be pre-disposing factors in the case of range sheep.

The bacteriology of progressive pneumonia in sheep has been under investigation in this laboratory for the last three years, as time and opportunity were available. We have studied the lungs of twenty field cases of the disease, and eight cases in which the diagnosis was made on the killing floor of the packing-house. In connection with the study of definite cases of this disease, we have also examined fourteen sets of normal lungs from bunches of sheep showing no signs of this condition, and five sets of apparently normal lungs from sheep which came from a ranch where there were many "lungers."

We did not find many species of bacteria in either the normal or diseased lungs. In the lungs from diseased sheep, there were three bacteria which were most frequently found, and in most cases either one, two or three of these species were found to the

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exclusion of any other bacteria. In three of the twenty-eight sets of lungs the cultures were unsatisfactory, and in two cases the cultures were negative, remaining sterile. The three organisms found most frequently in the twenty-three remaining cases were a diphtheroid bacillus, in sixteen cases; *Pasteurella oviseptica*, in fourteen cases; and a gram-negative diplococcus, which was probably *Micrococcus catarrhalis*, in six cases. In four of these cases the diphtheroid bacillus was recovered in pure culture, and in three cases the pasteurella was recovered in pure culture.

In the fourteen sets of supposedly normal lungs examined there was a somewhat more varied flora, but the diphtheroid bacillus was recognized in only one of these cases, and the pasteurella was not definitely identified in any of them, although several showed a Gram-negative cocco-bacillus which may have been a pasteurella.

In three of the five sets of apparently normal lungs from sheep which came from a ranch where this disease existed, the diphtheroid bacillus was found, and in two cases the pasteurella was identified.

In addition to the lungs from the "lunger" and normal sheep, bacteriological examination was made of the lungs of a lamb infested with stomach worms and lung worms. From these lungs we obtained a pasteurella and a diphtheroid bacillus. The pathological appearance of these lungs was similar in some respects to that of lungs from "lunger" cases.

Due to the fact that either the diphtheroid bacillus or the pasteurella, or both, were quite constantly present in cultures from "lunger" lungs, and were rarely found in presumably normal lungs, our attention has been centered on these two organisms. The diphtheroid organism caught our attention in the first set of lungs examined bacteriologically in the Montana Livestock Sanitary Board Laboratory. This was because these lungs contained several small abscesses similar to those found in cases of caseous lymphadenitis found in the packing-houses, and smears from the abscesses showed a bacillus which we did not at that time distinguish from the Preisz-Nocard bacillus. A little later we isolated the same organism from another typical "lunger," in which no abscesses were found. For comparison with these cases, a set of lungs was sent to us from a packing-house, in Butte, which was taken from a sheep which was diagnosed as showing lesions of typical caseous lymphadenitis.

These lungs showed abscesses containing a smooth, thick, greenish pus, and a pneumonic condition which was slightly different from that seen in the "lungers" which we had examined up to that time. From the abscesses in these lungs we isolated a diphtheroid bacillus which was apparently identical in every way with the one found in the "lungers."

In order to have a proper standard of comparison bacteriologically, we obtained cultures of three strains of the Preisz-Nocard bacillus from the Pathological Division of the U. S. Bureau of Animal Industry. These were easily distinguished from the organisms which we had obtained from the "lungers" and from the supposed typical case of caseous lymphadenitis from the packing-house. Later we examined bacteriologically the lungs from a case of caseous lymphadenitis which we saw killed in the packing-house. This case showed caseous body glands, as well as enlarged mediastinal glands filled with greenish, caseous material, and numerous encapsulated abscesses in the lungs. The lungs in this case were apparently normal outside the pus foci. From the lesions we isolated the true Preisz-Nocard bacillus in pure culture.

It appears, therefore, that the pneumonia which we are studying is distinct from caseous lymphadenitis, although cases in which abscesses occur might easily be confused with caseous lymphadenitis. Although the thoracic lymph glands show pathological changes in progressive pneumonia, we have never seen in them the lesions characteristic of caseous lymphadenitis. In only one of these cases have we seen a similar condition in any lymph gland. In Sheep No. 290 one of the precucullary lymph glands was much enlarged, and most of the gland tissue had been replaced by a white caseous material, in which we found the diphtheroid bacillus in smears.

In this connection it is noteworthy that R. S. Spray,⁴ of the University of Chicago, in a recent publication, describes a diplococcus, which may be the same organism which we have called a diphtheroid bacillus, which he has isolated from the glands and lungs of sheep showing lesions of caseous lymphadenitis.

During the time in which we have been studying this pneumonia, we have isolated three strains of a diphtheroid bacillus apparently identical with those isolated from "lunger" sheep, from lung lesions in two cows and one hog. If these were considered independently, we would have described the infective

agent as *Bacillus pyogenes*, and it may be that the organism from "lungers" should be considered as that species. In the hog lungs from which we recovered this organism, there were abscesses identical with those found in the sheep. The hog in this case came from a ranch where there were a number of cases of progressive pneumonia in sheep, and from which we had obtained three of our sheep strains of the diphtheroid bacillus.

METHODS OF CULTIVATION

Six of the sets of lungs examined were from sheep which had been held under observation at the laboratory. In these cases the lungs were removed from the sheep immediately after death, and cultures made. All other lungs were shipped to the laboratory packed in borax. Cultures were made in general from three places: the bronchial exudate, abscesses, if any, and from the cut surface of the lung tissue. In the latter case, the surface was seared, a deep cut made with a sterile knife, and the cut surface scraped with a sterile knife. In several cases cultures were also made from the mediastinal lymph glands, with negative results in every case.

The media used were plain broth, serum-broth, and serum-agar. The broth and agar used in this laboratory are the "hormone" media. The diphtheroid organisms were rather difficult to grow on the original cultures, and it is very probable that we failed to cultivate them in some cases where they were present. They were also very difficult to isolate where they were not obtained in pure culture.

In some cases animal inoculation with the original material was resorted to, using guinea pigs and rabbits. Where the pasteurella was present, the inoculation of guinea pigs always resulted in death, usually within twenty-four hours.

DIPHTheroid Bacillus

Morphology. The morphology of the different strains of diphtheroid bacilli studied varied so much that it has been a question whether to consider them as belonging to one species. They show all the forms described as occurring in cultures of *Bacillus pyogenes* by Brown and Orcutt.¹ As a rule, however, any one strain has not varied in general type to any great extent. Certain strains have shown the distinctly diphtheroid type through many generations on artificial media, and others have never shown this type, but have consistently shown short bacillary and coccoid forms. However, all the strains are some-

what pleomorphic, and some have shown a change from the diphtheroid to the coccoid form. Where observed in the tissues or in bronchial exudate, the short bacillary form has been predominant, even in strains which have been constantly diphtheroid in type in artificial media. The length of the bacillus varies from 0.5 to 1.0 μ , and the width is about 0.5 μ .

Some strains showed a predominance of the streptococcus form the chains being a succession of diplococci.

All the strains are non-motile. The most satisfactory stain has been Gram's stain. The bacillus is Gram-positive. In the diphtheroid and fusiform forms, a considerable portion of the cell does not retain the violet stain, leaving the Gram-positive portions appearing as deeply stained granules. In the coccoid forms there often appears to be a light-staining capsule or matrix surrounding and connecting the individuals. There is a tendency both in the tissues and on artificial media to occur in clumps.

Cultural Characteristics. We have found serum-agar the best medium on which to carry our strains. Original isolations have been made either on serum-agar, or in broth or serum-broth. The growth on plain agar is very scanty. On original isolation on serum-agar, the growth appears after about forty-eight hours as very small, round, smooth, discreet, colorless colonies. Some growth usually appears first in the condensation water, and there is a tendency for a thin film of growth to extend from the condensation water between the medium and the wall of the tube. On subcultures there is a delicate, almost colorless, diffuse growth, which has a characteristic granular appearance. The growth on artificial media never becomes heavy.

In plain broth or serum-broth, there is a slight cloud, which, on close examination, has a granular appearance, due to agglutination, and gradually settles to the lower portion of the medium, leaving the upper portion of the fluid comparatively clear.

On blood-agar this organism produces hemolysis. The colonies on blood-agar plates are from 0.5 mm. to 1.0 mm. in diameter. The majority of the strains showed a zone of complete hemolysis about the width of the diameter of the colony.

An attempt has been made to determine the fermentation reactions of twelve strains, including several strains isolated from other sources than sheep lungs, on twelve carbohydrates. There was difficulty in getting decisive results, due to the fact that the growth is so scanty in ordinary broth. We did not have

success in enriching the medium with serum, as the serum had the effect of decolorizing our indicator, which was brom-thymol blue. An efficient medium for fermentation tests has not as yet been worked out, and a report on these reactions will be reserved for later publication.

However, in one test involving only four strains, we obtained fairly good results. In this test we obtained definite acid production with all four strains in dextrose, saccharose, lactose, maltose and xylose. In inulin, mannit, salicin, dextrin, glycerin, dulcitol and arabinose, the results were inconsistent. As far as the carbohydrates in which we obtained definite and consistent acid production are concerned, our reactions agree with those reported by Brown and Orcutt for *Bacillus pyogenes*, and by Spray for the diplococcus which he isolated from lesions in sheep pneumonia. Brown and Orcutt report for *Bacillus pyogenes* acid production in four sugars—dextrose, saccharose, lactose and xylose. They did not use maltose. Spray reports for the diplococcus acid production in dextrose, saccharose, lactose, xylose and maltose.

Pathogenicity. Pathogenicity tests on laboratory animals have not been carried out systematically on a large number of strains, but we have data on twenty rabbits and six guinea pigs, and five rabbits inoculated with similar organisms isolated from other sources. The table shows the results of the inoculations with tissue and cultures.

Four inoculations were made with lung tissue, two into rabbits and two into guinea pigs. Both the guinea pigs and one of the rabbits died with pasteurella infection. Rabbit No. 8, which was inoculated subcutaneously, did not develop pasteurella infection, and showed only local lesions in the mammary gland, where the same type of pus formation occurred, as is found in the arthritis cases which resulted from inoculations with cultures of the diphtheroid bacillus.

Four inoculations were made with mixed cultures made directly from the original material, using two rabbits and two guinea pigs. The rabbits were inoculated intravenously, and the guinea pigs intraperitoneally. Both guinea pigs and one of the rabbits died of pasteurella infection. The other rabbit died in nine days, apparently due to infection with the diphtheroid bacillus. A local abscess developed at the point of inoculation, from which the diphtheroid bacillus was recovered.

Nearly all the work with pure cultures has been with rabbits. Only two guinea pigs have been used. One received a subcutaneous injection of a culture of Strain 186, which produced only a local lesion. The other received an intraperitoneal injection of a culture of Strain 339, with negative results.

Sixteen rabbits have been inoculated with cultures of the diphtheroid bacillus from "lunger" sheep, and five have been inoculated with cultures of similar diphtheroids isolated from other sources. The lunger strains were isolated from eight different sheep, and five rabbits were used for four strains isolated from other sources.

One rabbit received an intrathoracic injection, and died in two days with an acute pneumonia and pleuritis. Intratracheal injections were used in five rabbits. Rabbit No. 3 was given one intratracheal inoculation with a culture of Strain 186, and died after six months, with a chronic pneumonia. The diphtheroid bacillus was recovered from the lung. Four rabbits were given intratracheal injections of cultures of Strain 290, Rabbit No. 33 receiving seven inoculations at intervals of several days, and Rabbit No. 23 receiving six inoculations. The results in these four cases were negative. Rabbit No. 2 received a subcutaneous inoculation, and developed only local lesions, appearing at the point of inoculation and on the scrotum.

Eight rabbits received intravenous inoculations with cultures of five different strains. Negative results were obtained in two cases. Five developed an arthritis in the stifle, hock or shoulder joints, usually showing a systemic reaction as well. One showed a systemic effect with no apparent local lesions. One of these died after ten weeks, one was destroyed in a greatly emaciated state, and the others recovered. On post-mortem examination, one of the rabbits inoculated with Strain 186 showed small white areas in the kidneys in which the diphtheroid bacillus could be demonstrated.

Of the five rabbits inoculated with similar organisms from other sources, Nos. 59 and 64 received cultures of Strain 722, which was isolated from the pneumonic lung of a cow. Rabbit No. 59 died in thirteen days. The only lesions found on post-mortem examination were white areas in the kidneys, in which the diphtheroid bacillus was demonstrated. Rabbit No. 64 showed a systemic reaction, and after five weeks developed partial paralysis of the hind quarters. No. 63 received a culture of a diphtheroid recovered from the lung of a calf. This rabbit

died in five weeks, after developing total paralysis of the hind quarters. The only lesion found on post-mortem examination was a small pus focus on the muscles between the ischial tuberosity and the coccyx. Cultures from this lesion developed the diphtheroid bacillus in pure culture. No. 65 was inoculated with a culture of a diphtheroid recovered from the lungs of a hog, which came from a farm where there were "lunger" sheep. After six weeks this rabbit was completely paralyzed in the hind quarters. Nos. 64 and 65 were killed at six weeks, and both showed necrotic lesions in the bodies of the last two lumbar vertebrae, destroying the joint between the two vertebrae. Pure cultures of the diphtheroid bacillus were isolated from the lesions in both cases. No. 66 received a culture of a diphtheroid isolated from cow's milk.

This organism is apparently of a low type of virulence for rabbits, as most of them recovered from the infection. The most constant effect of inoculation of rabbits was the formation of characteristic pus foci, in the leg joints following intravenous inoculation, and at the point of inoculation in the case of subcutaneous inoculation. During the active stage of these abscesses, the pus was of the consistency of egg albumen and white in color, and the diphtheroid bacilli could be demonstrated in large numbers in the pus. Later the pus became thicker, but remained smooth and white, and the living organisms could not be found in it. In some of the recovered cases the joint lesions disappeared completely. In one rabbit, in which the record is incomplete as to the method of inoculation, several large abscesses were found on the mesentery. The diphtheroid bacillus could be recovered from these pus foci in pure culture, but later the organisms died in the abscesses, and no cultures could be obtained from those rabbits which made an apparent recovery.

EXPERIMENTS WITH SHEEP

A cooperative arrangement was made with Dr. Howard Welch, of the Montana Agricultural Experiment Station, at Bozeman, for carrying on inoculation experiments with sheep. Nine sheep were obtained from the Station flock, which was known to be free from the "lunger" disease. These sheep were of various breeds and ages, and included both ewes and wethers. Eight of these sheep were divided into two lots of four each. The ninth was used as a control. Lot No. 1 was used for inoculations with two strains of the diphtheroid bacillus, and lot

TABLE I
INOCULATIONS WITH PURE CULTURES OF DIPHTHEROID BACILLI

Strain	Animal		Method of Inoculation	Result
186	Rabbit		Intravenous	Arthritis. Systemic reaction. Recovered.
186	Rabbit		"	Arthritis. Systemic reaction. Killed after 19 days. Kidney lesions.
186	Rabbit	5	"	Negative. Culture used was a broth culture 3 weeks old.
254	"	19	"	Systemic reaction. Recovered.
R-1	"	61	"	Arthritis. Systemic reaction. Died in 2½ months.
R-3	"	58	"	Negative.
R-4	"	60	"	Arthritis. Recovered.
R-4	"	62	"	Arthritis. Recovered.
186	"	1	Intrathoracic	Acute pneumonia. Died in 2 days.
186	"	2	Subcutaneous	Local lesion. Lesion on scrotum.
186	"	3	Intratracheal	Chronic pneumonia. Died in 6 months. Diphtheroid recovered.
290	"	33	"	Negative.
290	"	36	"	Negative.
290	"	23	"	Negative.
290	"	41	"	Negative.
448	Rabbit			Abscesses on mesentery.
186	Guinea pig		Subcutaneous	Local lesion.
339	"		Intraperitoneal	Negative.

INOCULATIONS WITH PURE CULTURES OF DIPHTHEROID BACILLI FROM SOURCES OTHER THAN "LUNGER" SHEEP

722	Rabbit	59	Intravenous	Died in 13 days. Kidney lesions.
722	"	64	"	Systemic reaction. Paralysis of hind-quarters. Killed at 6 weeks. (Lesions in lumbar vertebrae.)
714	"	63	"	Systemic reaction. Paralysis of hind-quarters. Died in 5 weeks.
788	"	65	"	Systemic reaction. Paralysis of hind-quarters. Killed at 6 weeks. (Lesions in lumbar vertebrae.)
915	"	66	"	Systemic reaction.

INOCULATIONS WITH ORIGINAL TISSUES

175	Guinea pig	Intraperitoneal	Died. Pasteurella infection.
281	"	"	Died. Pasteurella infection.
281	Rabbit	8 Subcutaneous	Local lesions in mammary gland.
281	"	10 Intrathoracic	Died in 2 days. Pasteurella infection.

INOCULATIONS WITH ORIGINAL MIXED CULTURES

186	Rabbit	Intravenous	Died in 9 days. Lesion at inoculation point.
254	"	18	Died in 4 days. Pasteurella infection.
452	Guinea pig	Intraperitoneal	Died in 48 hours. Pasteurella infection.
631	"	"	Died in 11 hours. Pasteurella infection.

No. 2 was used for inoculation with two strains of the pasteurella. For each strain one sheep received a salt solution suspension of the growth on a serum-agar slant, and one received a broth culture. The amount of material inoculated was 5 cc in every case, and the injections were made into the trachea. Ten inoculations were made at weekly intervals. Each time the inoculations were made, 5 cc of sterile broth were inoculated intratracheally into the control sheep.

These inoculations were started on June 29, 1922, and continued for ten weeks. The sheep were then held awaiting developments. They were kept in two small open lots, with sheds in one corner for shelter, and fed a maintenance ration of hay. On January 10, 1923, the sheep were carefully examined by Dr. Welch and the writer, and no symptoms of any kind could be recognized. It was decided to kill one sheep from each lot, in order to determine whether any pathological changes had taken place.

From the lot inoculated with the diphtheroid, we killed Sheep No. 1457, which had been inoculated with a broth culture of Strain 290-C. It was killed by bleeding from the jugular vein and carotid artery. Post-mortem examination showed the sheep to be in excellent condition. No abnormalities of any kind were found, outside of the lungs. The lungs appeared perfectly normal, except for one small area of consolidation about 1 cm. in diameter at the posterior border of the diaphragmatic lobe of the left lung. This area had the same appearance as the consolidated portions of the lungs of "lunger" sheep. Sections of the consolidated area showed a pathological condition similar to that found in clinical cases of progressive pneumonia. In the air-containing lung tissue surrounding the consolidated nodule, there was perivascular and peribronchial infiltration with small mononuclear cells. The capillaries were engorged. In places there was infiltration of small mononuclear cells into the walls of the alveoli. The nodule at the center of the area consisted of a mass of small mononuclear cells. A bronchiole on the border of the nodule was filled with pus cells.

Cultures were made from the mucosa of the bronchi and from cut surface of lung tissue. Diphtheroid bacilli predominated in the growth in cultures from the bronchi. A few diphtheroid bacilli were demonstrated in material from the cut surface of the lung.

From the lot inoculated with *pasteurella* cultures, we killed Sheep No. 148, which had been inoculated with broth cultures of Strain 452-B. Post-mortem examination showed the sheep to be in excellent condition, and all organs, including the lungs, were apparently perfectly normal. Cultures were made from the mucosa of the primary bronchi, and from the cut surface of the lung tissue. The lung cultures remained sterile. Some growth occurred in the broth tubes from the bronchi, and smears showed the predominating organism to be a diphtheroid bacillus,

the presence of which was not accounted for by the conditions of the experiment.

The remaining six sheep were held under the same conditions as before. In April it was noted that one of the sheep in the diphtheroid lot showed slight symptoms of respiratory disturbance. At shearing time, in June, the same sheep was noticed by the shearer as showing the characteristic respiration of a "lunger." On July 12, 1923, a year after the inoculations were started, this sheep was killed. At this time we considered that her respiration was abnormal. She was in good condition, but not quite so fat as the other sheep. She was killed by bleeding, and post-mortem examination made immediately. There was nothing abnormal outside the respiratory system. At the point of inoculation on the trachea there was an abscess about the size of an egg. This was beneath the serous coat, and did not involve the mucosa. It contained a smooth, thick, viscid pus, having a greenish color. This pus was similar to that found in abscesses which occur in clinical cases of progressive pneumonia. The lungs appeared normal at first glance, but they were not as bright pink as usual, and showed indications of a slight interstitial infiltration. They were not perfectly elastic, and did not collapse as much as a normal lung usually does. There was an abscess about 2 cm. in diameter just beneath the pleura on the mediastinal face of the diaphragmatic lobe of the left lung. This abscess had a thick connective tissue capsule, and contained a smooth, thick, viscid, greenish pus, like that in the abscess on the trachea.

Smears from the trachea abscess showed the diphtheroid bacillus in pure culture. Smear from the lung abscess was negative. Cultures from the trachea abscess developed the diphtheroid bacillus in pure culture. Cultures from the lung abscess developed a *pasteurella* in pure culture. My cultures from the cut surface of the lung tissue remained sterile, except for one tube which developed a *staphylococcus*. Duplicate cultures were made by Dr. W. J. Hall, of the Experiment Station, who recovered the diphtheroid bacillus on cultures from the lung tissue.

Sections of the lung of the sheep showed the early stages of the pathological condition which is characteristic of progressive pneumonia of sheep. There was a marked peribronchial infiltration with small mononuclear cells, and an infiltration of the same type of cells into the walls of the alveoli.

It is obvious that up to date the sheep experiments have produced no conclusive results, and that we have not yet succeeded in producing a typical case of progressive pneumonia. However, the small results thus far obtained have pointed to the diphtheroid bacillus as a causative factor, and, in view of the findings of the clinical cases studied, we feel justified in considering this organism as the primary bacteriological factor in this condition. When the sheep experiments were started, it was thought that either the diphtheroid or the pasteurilla might prove to be a primary factor, but thus far no effect whatever has been observed from intratracheal inoculations of the pasteurilla, although the strains used were tested at the time the experiments were started, and were very pathogenic for guinea pigs. All the pasteurilla strains isolated from "lunger" cases killed guinea pigs in a short time, usually less than twenty-four hours, and, in view of the constancy with which this organism was found, in several cases in pure culture, it was considered very likely that this bacillus would be found to be the primary etiological factor. Finding the pasteurilla in pure culture in several cases is not necessarily significant, as the diphtheroid is often difficult to isolate, and might have been present and overlooked.

Dr. Welch, of the Experiment Station, who is carrying out the sheep experiments in cooperation with the Livestock Sanitary Board Laboratory, concurs with me in associating the diphtheroid bacillus with this disease as a primary factor. In view of the necessary length of time consumed in these experiments, we thought it advisable to publish our results up to date, and it is our intention to carry the experiments further and to record our results in a complete and detailed joint publication.

GENERAL DISCUSSION

In the study of any disease it must be realized that the question of its etiology involves more than the mere bacteriology of the condition, even though it is definitely infectious, and can be shown to be immediately due to a specific organism. This is especially true of a chronic conditions due to an organism of comparatively low virulence, as we believe is the case in progressive pneumonia of sheep. In this case we have made a fairly thorough study of the bacteriology of the condition, and have found quite constantly associated with this pneumonia a diphtheroid organism which we believe to be the primary bac-

teriological factor. However, we do not know definitely the predisposing factors which make affected sheep susceptible to the infection. The slowly progressive nature of the disease makes experimental proof very difficult, as well as the fact that it is practically impossible to reproduce experimentally the conditions under which range sheep become affected.

It is our opinion that the immediate cause of this condition is bacterial infection, but that the predisposing condition is the manner in which sheep are handled. This condition, as far as we know, has been recognized only in the northwestern range states. Dr. Welch states that the small farm flocks in the Galatin Valley are practically free from the disease, while range sheep in the same general section of the country are affected to a large extent. It seems reasonable to assume that the great exposure of the range sheep to irritation of the respiratory tract would render them susceptible to any invader that might be introduced into the lungs. During shearing time, and when sheep are being trailed to and from summer ranges, they inhale large amounts of dust, especially in localities where it is necessary to drive considerable distance in lanes. Sheep are usually "snotty-nosed" when being handled in this manner, and the catarrhal condition of the mucous membranes of the respiratory tract would make the sheep susceptible to infection with organisms which are widely distributed, as is the case with the members of the diphtheroid and *pasteurella* groups.

CONCLUSION

Our study of progressive pneumonia of sheep has led to the conclusion that its immediate cause is infection with bacteria of a low type of virulence, and that the principal predisposing factor which makes a certain percentage of the sheep susceptible to the infection, is the large amount of irritation of the respiratory tract to which sheep are subjected under present conditions in the handling of range sheep.

We have found two organisms quite constantly associated with this condition—a diphtheroid bacillus and *Pasteurella ovis septica*. From the findings in clinical cases of the disease, and from the animal experiments which have been carried on up to the present time, we believe that the *pasteurella* is a secondary invader, and that the primary bacteriological factor in the etiology of the disease is the diphtheroid bacillus which we have described. The morphological and cultural character-

istics of this bacillus, as far as they have been determined, and its pathogenic effect on laboratory animals correspond very closely to the description of *Bacillus pyogenes*, as given by Brown and Orcutt.¹ It also seems probable that the organism described by Spray^{3,4} as a diplococcus, which he has isolated from pneumonic lungs of sheep, may be the same organism which we have described as a diphtheroid bacillus.

This investigation is not complete, and will be carried further. Due to the slowly progressive nature of the disease, it will take several years to complete the animal experiments, and it is our intention to make a more complete report at a later date.

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²Marsh, Hadleigh: Progressive pneumonia of sheep. (1923) Jour. Amer. Vet. Med. Asso., lxii, N. S. 15 (4), p. 458.
³Spray, R. S.: Bacteriologic study of pneumonia in sheep. (1923) Jour. Inf. Dis., xxxiii (1), p. 97.
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ARMY MEDICAL CENTER ESTABLISHED AT WASHINGTON, D. C.

On August 31, 1923, the War Department published an order designating the Walter Reed General Hospital Reservation, in Washington, D. C., as the Army Medical Center. The change marked the establishment of the Army Medical School in its new half-million dollar building, and also the removal of the Army Veterinary School from Chicago, Ill., to Washington.

As now constituted the Army Medical Center includes the Walter Reed General Hospital, the Army Medical School, the Army Veterinary School, the Army Dental School, and the Army School for Nurses. At a later date it is contemplated that buildings will be provided to house the Army Medical Museum and the Surgeon General's Library at the Center.

The new Army Medical School building is a fine, four-story, brick and stone structure, well situated on one of the highest points on the reservation. Its offices, laboratories and classrooms present all that is modern in arrangement and equipment. The Veterinary Laboratory Section of the Army Medical School, in charge of Capt. R. A. Kelser, V.C., occupies a suite of five rooms on the second floor of the new building.

Colonel Weston P. Chamberlain, M.C., is Commandant of the Army Medical School. The Army Veterinary School is under the command of Lieut. Col. William P. Hill, V.C.

NOTES ON THE TREATMENT OF FOXES WITH CARBON TETRACHLORIDE, AND THE USE OF SOFT ELASTIC GLOBULES FOR PREVENTING INHALATION-COLLAPSE

By KARL B. HANSON and H. L. VANVOLKENBERG

Bureau of Biological Survey, U. S. Department of Agriculture

Recent work has successfully demonstrated the efficiency of chemically pure carbon tetrachloride (CCl_4) for the removal of hookworms and ascarids in smaller domestic animals, especially dogs.

Hall,¹ who discovered the efficacy of the drug as an anthelmintic in sufficient doses, administered it to 9 dogs at the rate of 0.3 cc per kilogram of body weight. The drug removed 34 hookworms and 6 ascarids, leaving none, thus showing an efficiency of 100 per cent in each case. He found it less effective administered in a drench, and concluded that for the best results it should be given in capsules.

Allen² gave the drug at the rate of 0.3 cc per kilo to 23 foxes, 13 of which were infested with hookworms. The dose expelled 79 and left 6, an efficiency of 93 per cent. His published data show that 6 of the foxes were infested with ascarids. The dose removed 10 and left 3, an efficiency of 77 per cent.

In percentage efficiency tests which the writers made on 30 foxes, this drug was as effective in the removal of hookworms and ascarids as it was found by Hall and Allen. In addition, it was found to be 100 per cent effective in the removal of intestinal flukes. Detailed data on these experiments will be published in a later paper.

Two advantages of carbon tetrachloride as an anthelmintic are that a purgative is not necessary and that the drug does not have to be given in divided or repeated doses. Thus only one catching and one administration are necessary in each treatment, a factor of practical importance in the treatment of foxes.

As in the treatment with other anthelmintics, food was withheld at least twelve hours previous to and two or three hours following the administration of the drug.

INHALATION-COLLAPSE

It was our experience that most of those foxes which suddenly inhaled carbon tetrachloride, or its fumes, as a result of capsules dissolving or breaking in the mouth, quickly manifested an intoxication, characterized by collapse.

This inhalation-collapse apparently was a paralysis of the medullary centers, first affecting the respiratory action and causing asphyxia. Respiration ceased almost immediately after a few convulsive movements or spasms of the muscles, especially those of respiration. The pupils were dilated, the body became first stiff and then limp, the tongue was sometimes retracted back in the mouth so as to occlude the passage of air through the larynx, the pulse was weak and uneven, and death soon followed.

To overcome this collapse quick action was necessary. As carbon tetrachloride and its fumes are of heavy molecular weight, the fox was suspended by its hind legs for a few seconds to allow the drug to gravitate from the lungs. Simultaneously, the thorax was compressed a few times to help force out the drug. The animal was laid on its back and artificial respiration accomplished by a method frequently used upon human beings, that is, by the method of working the fore limbs back and forth and pumping the chest. Precaution was taken that the tongue was not retracted back in the mouth so as to prevent inspiration.

In the fourteen cases of inhalation-collapse encountered, nine recovered and five died. In some instances the animal could not be revived because of the sudden and complete cessation of respiration. Most of the animals which could not be revived by artificial respiration were in impaired physical condition.

RELATIVE FREQUENCY OF INHALATION-COLLAPSE IN THE USE OF
HARD GELATIN CAPSULES AND SOFT ELASTIC GLOBULES

The use of hard gelatin capsules was found to be attended with dangers and losses due to the inhalation of the drug. These capsules, being brittle, were easily crushed by the teeth and were rapidly dissolved by the juices of the mouth, thus allowing the drug to escape with toxic and sometimes fatal results. Of the 110 foxes which were given a total of 220 single capsules, 10 (9.1 per cent) suffered inhalation-collapse and 4 (3.6 per cent) died from this form of intoxication. Although all of these capsules were dipped in castor oil, just previous to administration, so as to lessen their solubility and hasten the swallowing, most

of the cases of inhalation-collapse occurred as a result of capsules dissolving in the mouth.

In an attempt to overcome these dangers double capsules were tried, these being prepared by inclosing a 1-cc hard gelatin capsule containing the drug within one of the $1\frac{1}{2}$ -cc size. These capsules were also dipped in castor oil just before administration, and 62 of them were given to 31 foxes. Four (12.9 per cent) of the 31 animals suffered inhalation-collapse and one (3.2 per cent) died as a result.

The idea was finally conceived of having the drug made up in soft elastic globules, containing doses varying from $\frac{1}{4}$ to 2 cc, for various-sized foxes. These globules, being tough and elastic, will withstand considerable biting, and they are also slowly soluble in saliva. One of us held a globule in the mouth for 25 minutes without its dissolving sufficiently to liberate the drug. Besides, tests were performed upon foxes shortly after death to determine whether the different sizes of globules containing effective doses of the drug could be forced down the trachea of the animals of the sizes for which they should be used. These tests indicated that the size, shape, and elasticity of these globules should preclude their passage into the trachea.

A total of 663 globules was given to 515 foxes. None of these animals suffered inhalation-collapse. One experiment animal, however, which was given eight globules at one dosing, died from suffocation when one globule became lodged over the laryngeal opening.

These results demonstrated the safety of the globules over hard gelatin capsules. With proper precautions in administration, the use of the globules should reduce inhalation-collapse to a minimum. Another advantage found in having the drug made up in globules was that the task was eliminated of measuring individual doses before the treatment of each fox or small groups of foxes, a factor of practical importance when several animals are treated at one time.

RETARDED SOLUBILITY OF SOFT ELASTIC GLOBULES AND THE NECESSITY OF AN EXTENDED FAST FOLLOWING THEIR ADMINISTRATION

To determine the time required for soft elastic globules to liberate their contents after reaching the stomach, and also to determine whether it is necessary to withhold feed and water longer after the administration of carbon tetrachloride in soft

elastic globules than after its administration in hard gelatin capsules, foxes were given the drug either in hard gelatin capsules or soft elastic globules, killed with an intrathoracic injection of strychnin sulphate at varying periods from $\frac{1}{2}$ to $1\frac{1}{2}$ hours after dosing, and promptly opened. Observations made in these tests are reported in the following table:

Time killed after dosing	Type of capsule used	Number of animals	Number of capsules		Location of dose and remarks
			Intact	Broken with contents released	
$\frac{1}{2}$ hr.	Hard	1	0	6	Entire dose still in stomach.
$\frac{1}{2}$ hr.	Soft	1	4	0	Entire dose still in stomach.
$\frac{3}{4}$ hr.	Soft	1	4	0	Entire dose still in stomach.
1 hr.	Hard	1	0	6	Some of drug still in stomach, but most in anterior half of small intestine.
1 hr.	Soft	2	5	3	Entire dose still in stomach.
$1\frac{1}{4}$ hr.	Soft	2	3	5	Entire dose still in stomach.
$1\frac{1}{2}$ hr.	Hard	1	0	6	Entire dose in small intestine, chiefly in the posterior half.
$1\frac{1}{2}$ hr.	Soft	1	0	4	Practically all of the drug still in the stomach; small amount had passed into the duodenum. Animal was fed 3 minutes before killing, and the feed and drug were found mixed in pyloric region of stomach.

It was found that it requires from 1 to $1\frac{1}{2}$ hours for soft elastic globules to liberate their contents after reaching the stomach; also that globules containing a therapeutic dose (0.3 cc per kilo) of carbon tetrachloride dissolve and liberate the drug in the stomach before they pass into the small intestines. Carbon tetrachloride, given in hard gelatin capsules, passes about an hour sooner into the small intestine than when given in soft elastic globules. Thus, in order to obtain as effective anthelmintic results in the use of soft elastic globules for the administration of carbon tetrachloride as in the use of hard gelatin capsules, food and water apparently should be withheld about an hour longer after treatment than is necessary after use of the hard gelatin capsule.

EFFICACY OF CARBON TETRACHLORIDE IN GLOBULES

Provided that food and water are withheld long enough after dosing, the drug apparently is as effective in globules as in hard gelatin capsules. Three foxes, given the drug in globules at the



Fig. 1. The first step in restraint is to grasp the fox around the neck with the tongs in the left hand and the hind legs in the right. Grasp the fore legs in the left hand holding the tongs and lay the animal on its side.

MANY FOXES TOLERANT TO LARGE DOSES OF CARBON TETRACHLORIDE

Many foxes tolerate large doses of chemically pure carbon tetrachloride. Eleven different foxes were given doses varying from 6 to 12 cc without showing apparent toxic effects. Approximately twenty foxes were treated with therapeutic doses, at two-week intervals, for a total of four treatments for each animal. None of these animals showed apparent toxic effects, with the exception of one which died from a

rate of 0.25 cc per kilo, passed 56 hookworms and retained 5, an efficiency of 91.8 per cent; passed 38 ascarids and retained 3, an efficiency of 92.7 per cent; passed 8 intestinal flukes and retained none, an efficiency of 100 per cent. The method of determining the efficiency of these treatments was the same as that used by Hall.¹ These results, obtained with a dose rate of 0.25 cc per kilo, compare favorably with the results obtained by Allen² when he gave the drug in capsules at the rate of 0.3 cc per kilo.

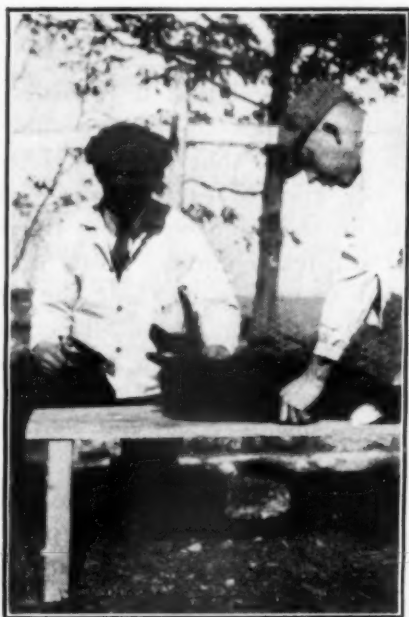


Fig. 2. The operator takes a secure hold of the two ears with the left hand as close as possible to the head.

delayed intoxication described later. Fifty-five cc were given by means of a stomach tube to an 8-pound red fox following a 20-hour fast. This was a dose rate of over 15 cc per kilo. This dose was followed in two weeks by 6 cc and in a month by 2 cc. Although all three of these doses, especially the first, were larger than necessary to obtain effective anthelmintic results, the animal showed no apparent toxic symptoms.

DELAYED INTOXICATION FROM CARBON TETRACHLORIDE

In spite of the fact that previous tests indicate carbon tetrachloride to be apparently non-toxic in various doses by way of



Fig. 3. The tongs are released by the assistant, who continues holding the legs while the operator holds the ears.

the digestive tract, losses occurred from what may be called a delayed intoxication. Of 660 foxes treated, 27 (4.09 per cent) have died from 12 hours to 4 days after treatment. The doses varied from 0.3 to 0.54 cc per kilo. The dose rate in the majority of these fatalities varied slightly from 0.4 cc per kilo.

The most common and typical lesion encountered was finding a large amount of unclotted blood in the abdominal cavity. This blood was dark, but turned a bright red upon exposure to air. It failed to clot after standing twenty-four hours. The source of this blood was probably from the liver or the hem-

orrhages in the various tissues in the abdominal cavity, as described below, or both.

Other lesions found were hemorrhages, usually suggillations, of the endocardium of the left ventricle, mesentery, diaphragm, pancreas, and occasionally in the muscle tissue and the connective tissue under the skin. These hemorrhages usually were dark in color. As a rule, the kidneys were congested. The liver bulged on section, the tissues were friable, and the lobules were easily visible, being dark at the center and light at the periphery. Many cases showed a generalized icterus. The mucosa



Fig. 4. The operator tilts the head by pulling back on the ears. In his right hand he takes the forceps, grasps the globule with them, and passes it into the throat.

of the small intestines, especially of those foxes which lingered more than two days after dosing, showed extreme congestion, with areas of hemorrhage. The intestinal contents were dark and of a tarry consistency. The lesions were more or less typical in every case of delayed intoxication.

Most of these losses occurred in the treatment of 52 adult foxes on one ranch. Nineteen of these (36.5 per cent), each of which received a 2-cc globule, died from two to four days after dosing. Although this loss was suffered in the treatment of the adult

foxes, none were suffered when each of 66 seven-months-old pups on the same ranch were given a $1\frac{1}{2}$ -cc globule. These globules were submitted to a chemical examination by the Bureau of Animal Industry of the U. S. Department of Agriculture. The carbon tetrachloride was found to be chemically pure and the gelatin free of toxic chemicals. From the carcasses of several of these foxes a strain of *Bacillus coli*, which fails to ferment saccharose, was isolated in the bacteriological laboratory of the Pathological Division of the Bureau of Animal Industry, U. S. Department of Agriculture. Excluding the use

of the drug on the above group of 52 animals, the losses from delayed intoxication were 8 (1.31 per cent) of 608 foxes treated. Of these eight which died, one was subject to infectious enteritis and four were seriously affected with notoedric mange.

Others apparently have encountered losses from this form of intoxication. Doctor F. N. Steele, of Muskegon, Mich., has brought to our attention an instance of several foxes dying from one to five days after treatment with carbon tetrachloride. These foxes were found to have an infectious disease characterized by an acute enteritis.

Thus it should be emphasized that sometimes there is danger of losses from treating foxes with carbon tetrachloride, even



Fig. 5. The fox snaps its jaws together when the dorsal arch of the tongue is reached, the instrument is pushed back, and the globule released in the pharynx.

though the full dose of the drug reaches the stomach intact. The danger seems to be increased when disease is present.

MODES OF RESTRAINT AND THE ADMINISTRATION OF GLOBULES AND CAPSULES

Of the several methods of administering globules and capsules to foxes thus far tried, the most satisfactory has been the use of Bozeman double-curved forceps for the globules and a metal balling gun for both the capsules and the globules. The mode of restraint and administration was similar for each in-

strument, and it was seldom found necessary to use a mouth-gag.

In the method employed, the fox was laid on its side and held by an assistant grasping the legs and tongs (Fig. 1). After the operator obtained a secure hold of the head by claspings the ears in one hand (Fig. 2), the tongs were removed (Fig. 3). The operator then tilted back the head of the animal by means of the hand holding the ears (Fig. 4), and with the other hand passed the instrument into the mouth and released the globule or capsule in the pharynx (Fig. 5). The globules or capsules were dipped in cod-



Fig. 6. The operator holds the ears long enough for the assistant to withdraw his hands from danger of being bitten.



Fig. 7. When two assistants are available, the first grasps the ears with the right hand, as shown in figure 2, and then places the left under the lower jaw; the second assistant holds the fore legs in one hand and the hind legs in the other.

liver or castor oil, just previous to administration, to make swallowing easy. When the operator tilted back the head, the fox usually opened its mouth wide and kept it wide open until the globule was given; however, in case the animal refused so to open its mouth, rubbing or tapping the under side of the throat usually brought the desired result. If the fox still refused to open its mouth, a mouth-gag was used.

Precaution was taken that the fox did not see or feel that the instrument was being placed into its mouth

until the dorsal arch of the tongue was reached, so as to lessen the likelihood of its biting down too soon on the instrument or globule. As soon as the instrument touched the dorsal arch of the tongue, which could not be avoided, the fox usually snapped its jaws together (Fig. 5). At this point the globule was seldom bitten and the instrument could be pushed back so as to release the globule in the pharynx. In case the globule was bitten, the rear end of the fox was immediately elevated and the head lowered to prevent inhalation or gravitation of carbon tetrachloride or its fumes into the lungs.

As soon as the globule was properly placed in the back part of the mouth, the instrument was withdrawn and the fox immediately released to insure quick and successful swallowing, the operator holding the ears just long enough to allow the assistant to let go of the legs and withdraw his hands from danger of being bitten (Fig. 6). After the fox was liberated, it was carefully watched to determine whether it had swallowed the dose, usually indicated by protrusion and retraction of the tongue, and also to determine whether it was suffering inhalation-collapse.

When two assistants, instead of one, were available, the method of restraint was sometimes modified by having one assistant hold the ears and manipulate the head while the other one held the legs. In holding the head, the assistant first grasped the ears with one hand and placed the other under the lower jaw; thus the head could be held in the desired position and steadied (Fig. 7). Care was taken that the hand under the jaw did not interfere with breathing or swallowing. This dispensed with the necessity of the operator holding the head, thus relieving him of considerable work and increasing the safety of administration.

SUMMARY

The larger proportion of foxes which suddenly inhaled carbon tetrachloride or its fumes, usually as a result of capsules dissolving or breaking in the mouth, collapsed within a few seconds after the drug was administered. This inhalation-collapse was characterized principally by cessation of respiration. Artificial respiration, provided it was promptly applied, frequently was successful in reviving animals suffering this collapse. Of the fourteen foxes which manifested inhalation-collapse, five could not be revived.

Tests demonstrated that inhalation-collapse was not so likely

to occur when carbon tetrachloride was given in soft elastic globules as when given in hard gelatin capsules. Of the 141 foxes which were given the drug in hard gelatin capsules, 14 (9.9 per cent) suffered inhalation-collapse and 5 (3.5 per cent) died. On the other hand, none of the 515 foxes which were given the drug in soft elastic globules suffered inhalation-collapse. There were also other practical advantages found in giving the drug made up in soft elastic globules.

The retarded solubility of globules did not allow the drug to escape and become available for anthelmintic action until 1 to 1½ hours after dosing. Globules containing a therapeutic dose (0.3 cc per kilo) liberated their contents in the stomach before passing into the small intestine. Feed given 1½ hours after the administration of globules was found mixed with carbon tetrachloride in the pyloric region of the stomach. The drug was found to leave the stomach about an hour sooner when given in hard gelatin capsules than when given in globules. This indicates that, in order to obtain as efficient anthelmintic results in the use of soft elastic globules as in the use of hard gelatin capsules, feed and water should be withheld an hour longer after the administration of the drug in globules than is necessary after its administration in hard gelatin capsules.

Carbon tetrachloride apparently was as effective in the removal of worms when given in soft elastic globules as when given in hard gelatin capsules, that is, provided food and water were withheld for three hours after the administration of the globules.

Many foxes tolerated repeated and heavy doses of carbon tetrachloride.

Of 660 foxes treated with carbon tetrachloride, 27 (4.09 per cent) died from a delayed intoxication from two to four days after treatment. Danger of losses from this intoxication seems to be increased when disease is present.

The mode of restraint and method of administration described and illustrated was found to be the most satisfactory thus far tested for the administration of capsules and globules to foxes.

ACKNOWLEDGMENTS

Thanks are due the fox ranchers who kindly allowed the writers to perform many of these tests upon their foxes.

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CHRONIC CARRIERS IN FOWL TYPHOID

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Laboratory of Poultry Pathology of the North Carolina Experiment Station

HISTORICAL

The matter of disease carriers has been a subject of considerable concern to the poultry industry. The extent of liability of such birds in poultry mortality is problematical. Considering the fact, however, that birds dwell together in such intimate contact, drinking from the same containers, feeding from the same hoppers, utilizing the same range houses, etc., it is highly probable that the bird, sick of a contagious disease but not showing clinical symptoms, is a potent factor in disseminating such disease. It has been proved time and again in the field that a certain percentage of well birds in contact, as mentioned above, with infected ones, soon develop like disease. This occurs in roup, cholera, typhoid and many other diseases of the domestic fowl. The role that the actual carrier of such disease plays is yet to be conclusively proved.

A fact that mitigates largely against the elimination of carriers is the droopy, depressed appearance that is so common to many of the poultry diseases. Unless the poultryman is a keen diagnostician the chance of confusing the diarrheal condition common to slight intestinal upsets with the typical exudate of fowl typhoid is great.

In reference to the dissemination of fowl typhoid, C. Truche¹ says:

"Only adult fowls are attacked and natural contagion is probably by ingestion of food material soiled with infected feces. Experimentally, the disease is certainly transmissible that way."

F. d'Herelle² makes mention of the following relation to the transmission of this disease:

"The pathogenic bacillus remains alive and virulent during several months in the regions where the infection has been epidemic. In several tests, it has been shown that an isolated, infected chicken-yard, cleaned and left unoccupied for six to eight months, still contains virulent germs, for, when repopu-

¹Truche, C., *Jour. Comp. Path. & Ther.*, Edinburgh, Vol. 36, part 2, page 135, June, 1923.

²d'Herelle, F., *The Bacteriophage*, Pasteur Institute, Paris, France, p. 206.

lated with chickens from a region free from the disease, the infection breaks out again within a few days among the new occupants."

Hence the carrier problem in fowl typhoid, if the carrier is disseminating the bacilli in virulent form in the fecal matter and thus infecting the soil, is a serious one.

A FOWL TYPHOID CARRIER

In the studies being conducted on the septicemic diseases of the domestic fowl, by the North Carolina Experiment Station, an instance of a bird which might have been a possible carrier of fowl typhoid was noted during some artificial infection work on this subject. This bird was infected on the 15th of February with the fowl typhoid organism obtained from Lister Institute, London, England. With the exception of diarrhea, no clinical symptoms were noted, and the bird was discharged from the hospital on the 26th. Ordinarily this bird would not have been separated from the flock of a commercial poultryman at this



Fig. 1. A Mottled Ancona Hen Affected with Fowl Typhoid.

time. On the 3rd of March, the bird showed a relapse with severe clinical symptoms. The temperature was 111° F. This high temperature continued. On the 15th of March the bird refused food and this condition existed until the 21st when the bird was destroyed in the gas chamber for autopsy, the bird showing signs of emaciation at this time. *B. sanguinarium* was

isolated in pure culture from the kidneys although it was not recovered from the other organs. Post-mortem examination did not show the usual conditions existing in an acute case of fowl typhoid, but an emaciated condition of the internal organs due undoubtedly to a prolonged toxemia.

The hospital record and clinical picture of this bird is as follows:

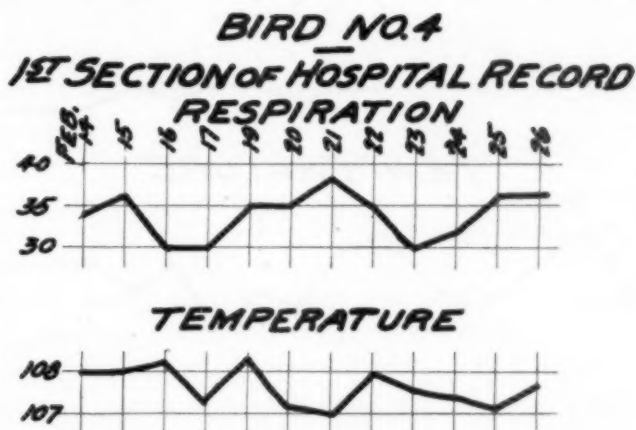
Subject: Mottled Single Comb Ancona hen.

Source: Poultry Plant, Raleigh, N. C.

Condition on Date of Infection: Excellent.

Method of Infection: 5 cc bacillary saline emulsion of *B. sanguinarium* grown on 24-hour agar slant (Lister Institute, England) was placed in the drinking water at 4 p. m., Feb. 15, 1923.

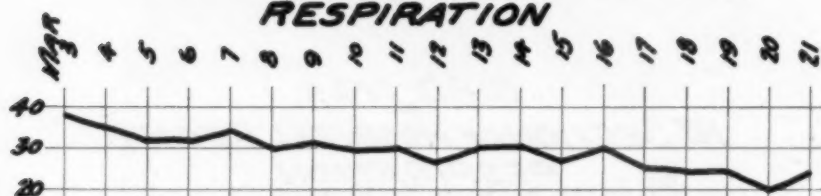
Date	Temperature	Respiration	Remarks
Feb. 14	108.0	34	Pre-inoculation
15	108.0	36	Inoculated
16	108.2	30	
17	107.2	30	
19	108.3	36	
20	107.2	36	Diarrhea
21	107.0	38	Diarrhea. Excreta streaked with blood.
22	107.9	36	Test for septicemia—negative.
23	107.6	30	
24	107.4	32	
25	107.2	36	
26	107.6	36	



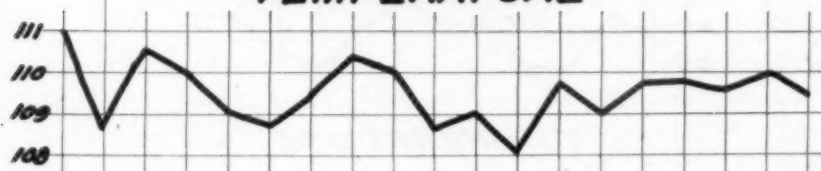
(Notation: To all physical appearances the bird was normal and had thrown off the disease. Bird was discharged. On March 3 clinical symptoms reappeared and hospital chart was continued.)

Mar. 3	111.0	38	Bird dejected
4	108.6	36	Discharge of about 25 cc watery matter.
5	110.6	32	Discharge watery.
6	110.0	32	"
7	109.0	34	"
8	108.8	30	"
9	109.4	31	"
10	110.4	30	"
11	110.0	30	"
12	108.6	27	"
13	109.0	30	"
14	108.0	30	"
15	109.8	27	"
16	108.0	30	"
17	108.8	25	"
18	108.8	24	"
19	108.6	24	"
20	109.0	20	"
21	108.4	24	Bird destroyed in gas chamber.

2ND SECTION OF HOSPITAL RECORD RESPIRATION



TEMPERATURE



In regard to the possibility of spread of infection through drinking water and soiled feed from the ground, the following

studies in longevity of the organism under various conditions were pursued.

EXPERIMENTS ON RETAINED VIRULENCE OF *B. SANGUINARIUM*

Inoculated tap water subjected to sunlight showed no growth after 24 hours. The same was true of distilled water. The temperature of this experiment averaged about 80° F.

In the dark the organism retained its vitality for 20 days in both tap and in distilled water, after which time an excessive production of moulds precluded the chance of accurate work. The temperature in the dark averaged 70° to 75° F.

The ability to withstand dessication was worked out by inserting sterile glass rods into 24-hour bacillary saline emulsions of *B. sanguinarium* and inserting them in sterile, glass test-tubes. The following were the results in these experiments:

Growth was obtained from rods subjected to sunlight up to 30 hours.

Rods held under conditions of darkness showed growth up to 89 hours.

By subjecting immersed rods, as mentioned above, in dry heat (hot air oven) it was found that *B. sanguinarium* gives a good growth when subjected to 75° C. for five minutes but failed to grow if subjected to the same temperature for ten minutes. Luxuriant growth was obtained after subjection to 70° C. for 10 minutes.

SUMMARY

There is here shown a case of apparent recovery of a mottled Ancona hen suffering from fowl typhoid. Such a hen would likely pass unobserved in a commercial flock. Later the same bird developed well marked symptoms of the disease. Between the two attacks such a bird might easily be sold or otherwise disposed of and form a new center of infection.

MORE HORSES AND MULES SOLD

Reports from the sixty-seven principal live stock markets of the country just made public by the United States Department of Agriculture show that there has been a third more horses and mules sold during the first eight months of this year than were sold in the same period last year. The figures, to be exact, are: total sales, 319,392, an increase of 80,341 head, or 33.6 per cent. Furthermore, sales last year increased 16.3 per cent for this period over 1921.

BUSINESS PRINCIPLES AS APPLIED TO VETERINARY PRACTICE¹

By A. L. DANFORTH, Watertown, N. Y.

In the January number of the *North American Veterinarian* there was an article by Dr. E. V. Moore, of Cortland, on "Business Methods in Country Practice." This was so interesting, to me at least, that I was prompted to choose a similar subject, which may develop into more or less of a discussion of Dr. Moore's article. It has occurred to me for a long time that we practitioners pay too much attention to income and not enough to expense. There has always been too narrow a gap between gross receipts and expenses. The only way to widen this margin, which represents net profit, is to increase gross receipts or decrease expenses.

Gross income may be increased only by increasing the amount of business or by raising prices for services rendered. Increased volume will, of course, increase our net income, but the ratio between income and expenses remains the same unless we cut down expense.

In his paper Dr. Moore states that forty-five per cent of their gross receipts was consumed by expenses incurred in carrying on their practice. I appreciate the fact that one's office arrangement would have an important bearing on expenditures. We are fortunate in having dwelling and office at the same address, which simplifies receiving and handling calls coming in out of business hours, and avoids the expense of an extra attendant. It has not been our custom to itemize our expenses, in different departments, but we do divide them under two heads, putting our auto expense under one head and bunching everything else. In 1920 and 1921, when our practice was conducted as a partnership, as is that of Drs. Moore and McAuliffe, our expense averaged one-third of our gross receipts. During 1922 our expense consumed forty-two per cent of our gross income. This year, however, our practice was conducted with an assistant, and this forty-two per cent includes his salary.

We tried several years ago buying horses in fall and selling in spring, but with us this proved expensive, as light horses gradually declined in price, and we found that we had to hold

¹Read before the fourteenth annual meeting of the Central New York Veterinary Medical Association, held at Syracuse, N. Y., June 14, 1923.

them sometimes for weeks before selling. We find any number of farmers who are glad to let horses for a few weeks for their keep, and while we occasionally draw a lemon, we usually get a couple spoken for in the fall, get them when heavy snow comes and take them home as soon as we finish with them. This is much more satisfactory. For instance, this last winter we kept one horse and drove him only a little. The locality, of course, makes a difference, as we seldom get much snow around Watertown.

Our big item of expense is autos. We use Fords, and while I cannot compare their expense with that of other makes, I do know that they make up a little over one-half the total expense. I have found that the most economical way is to change every year. I think most of you would be surprised if you kept an auto expense account. Perhaps a more substantial make of car, used for a longer period, would be as economical, but never having graduated from the beginner's class, I am not qualified to say.

It has always been our practice to buy our supplies in fairly large quantities, but this has been limited somewhat by lack of storage space. I think that staple products such as cotton, bandages, etc., can be bought in quantities at a big saving, now that the market is somewhat stabilized, and with increased storage and hospital facilities, we shall buy in larger quantities. Our variety of drugs has decreased noticeably the past few years, and with just as good results. We buy acetic fluidextract of nux vomica, instead of the alcoholic, at about \$4.00 a gallon, and this is about the only fluidextract we do use. We spend very little money for biologics, except tetanus antitoxin in 500-unit doses and canine distemper serum and bacterins, the value of the latter being somewhat in question.

I think our prices compare favorably with those of other practitioners. We charge \$2.00 for city calls, with medicine extra, i. e., if any great amount is left. The local physicians charge \$3.00. Charge for spaying is \$5.00 for puppies and extra for old dogs, with an additional charge of fifty cents a day while in the hospital. We have a flat rate of \$5.00 for cats. Castration of colts, yearlings, \$5.00; \$7.00 for 2-year olds and \$10.00 for older ones. I do not think we get quite so much for obstetrical work as some others. Our minimum charge is \$5.00, and we rarely get over \$10.00 or \$12.00, unless quite some distance away. For country calls we charge fifty cents a mile one way and \$2.00 for the call; extra charge, of course, for night work.

Office calls, \$1.50 for horses and \$1.00 for small animals, unless some special service is rendered.

In our section fifty per cent of our clients are tenant farmers and we do not have many of the higher type of dairy cattle and for this reason our prices are, of course, limited to a certain extent.

Collections have been a problem during the past two years, but conditions are better now. The question of how lenient to be must be decided in each individual case. We have very few for whom we refuse to do work, but we have quite a large number of clients who are slow pay and who must be dealt with rather firmly. Unless we know positively that a client is a "dead beat," we make the call and then if pay is not forthcoming, we find out the reason why. I might add that all small animal work is cash in our place. We have also always made it a practice, in cases that terminated badly, to make quite a substantial reduction in the bill.

Another rule I have always tried to follow is to place myself in the client's position, and I believe if we could do this, we could more readily understand his losses when a valuable animal dies, especially if the client is one who cannot well afford the loss.

Promptness is to my mind as much of an asset in practice as it is in any line of business. When an owner finally makes up his mind to employ a veterinarian, the sooner he can get the service the better he is pleased. I know of two veterinarians in particular who are complaining of hard times and, only a few days ago, a foreman of a stable with several horses told me it usually took about three days to get one of these veterinarians to make a call on one of his animals. Whether it is a case of colic, dystocia, or foot-rot, it should be attended to as promptly as possible.

The question of dispensing is receiving more or less discussion in our journals. For my part, I do not see how a country practice, that is widely scattered, can be capably handled without dispensing. The system should be used with judgment, however; otherwise we are apt to take on the appearance of drug-store clerks. Dispensing such preparations as dusting powders, liniments, heave medicine, etc., is especially necessary, when two are handling a widely scattered clientele.

The matter of receiving telephone calls is especially important. No practitioner's telephone should be left alone at any time, whether he is available or not. Regardless of the fact that I

may be away for a week, I insist on my telephone being answered by someone. It must be annoying to a client to try for several times and not be able to get a raise. Other conditions being equal, he is apt to call the next time where he is sure of getting an answer.

There has always been a question in my mind whether we practitioners should not do more advertising. If we have a service which we can render to stock owners, I do not see any legitimate or ethical reason why the owner should not be apprised of the fact. Personally, I have never done any myself, but I believe that this could be done in a dignified and strictly ethical way. Conditions have changed materially in the past ten or twelve years and are still changing, and if we are to survive we must adapt ourselves to these changes.

As for the future of veterinary medicine, I really think we have passed through our worst crisis during the past two years. I do not anticipate any great boom in heavy horse business, but I do think more heavy horses will be used in cities the next few years for short-haul work. Farmers, also, are going to continue to use horses, at least until cost of operating trucks and tractors is materially reduced. We should keep ourselves posted on the horse industry, and let no opportunity pass to boost and encourage the raising and using of good horses. The dairy industry has probably passed through its worst crisis. Consumption of dairy products has increased appreciably during the last two or three years and will continue to increase. This will, of course, mean increased attention to dairy cattle. We should help to educate the farmer regarding the value of keeping cows of good production instead of so many scrubs.

The veterinary profession is not going to boom to the point where we can lie down on the job, but, on the other hand, I do not think there is any grave danger with which to concern ourselves, provided each of us continues to apply himself with diligence, maintaining perseverance, courtesy and high ethical standards.

Small details are not obstacles to be walked around, but steps to be used in getting up. Small tasks can be the best training for subsequent responsibilities. Study the life of a man who has become an outstanding success and you will find that he began by doing the little things well—and never broke the habit.

PYOMETRA IN THE BITCH¹

By R. H. SPAULDING, *White Plains, N. Y.*

Pyometra is of quite common occurrence in bitches. It is found fully as frequently in females which have never been bred, or, one might more correctly say, in those where a known mating has never taken place, as in those which have had puppies. It occurs as a sequela of endometritis and occasionally of septic metritis. It is sometimes seen as an aftermath of douching to prevent pregnancy from an undesirable mating. In old bitches, it frequently follows a prolonged and profuse season. The condition is not so frequent in young as in old bitches. With relation to the period of season it may occur at any period, but is more often seen from 6 weeks to 2 months after completion of heat.

The pus accumulates slowly, especially in the early stages, and attains an enormous quantity. I should say that it would take from four to six weeks for sufficient pus to accumulate to cause discomfort to the animal. In one case, a Pekinese, which was operated on, the uterus and pus weighed seven pounds, while the dog weighed fourteen pounds, five or six days after the operation. There were easily two quarts of pus in the uterus.

SYMPTOMS

The first symptom of pyometra is a gradual enlargement of the abdomen. Occurring as it usually does, following heat, it is easily mistaken for pregnancy. In some cases when the uterus becomes sufficiently filled, the pressure causes a dilatation of the os uteri and discharging takes place. As soon as the pressure is reduced the os closes, preventing further discharge for a time. Later, when the pressure is increased, the os again opens. In other cases no discharging takes place and acute symptoms are observed. The animal has a high fever, loss of appetite, costiveness and great depression.

Unless relief is given in these cases the bitch will soon succumb to septicemia. In all cases, as the distention of the uterus increases, the appetite decreases, the animal finds it more difficult to move and she becomes inactive, listless and drowsy. Quite frequently, when the disease lasts for some time, a digestive disturbance develops, as evidenced by chronic meteorism. This I have found particularly true in those cases associated with menorrhagia.

¹Read before the Veterinary Medical Association of New York City, June 6, 1923.

The pus is usually yellow or greyish-yellow in color, but may be reddish-brown. In consistency it is very thick and stringy. The quarters, when soiled with the pus, rapidly become sore and blistered. Urination is frequent and the quantity small. This is due partly to the increased pressure in the abdominal cavity and partly to the irritation of the genitals.

The bowels are usually costive, but with the advent of septicemia diarrhea develops. In old dogs the heart is often affected and with the occurrence of a profuse discharge needs to be bolstered, to counteract the shock. Discharge from the eyes and a cough are occasional symptoms, but not so diagnostic as in septic metritis.

DIAGNOSIS

As has been said before, pyometra is often diagnosed as pregnancy, in spite of the fact that, in the literature, stress is laid on this point. It may also be confused with dropsy, but in my experience dropsy is not nearly so frequent in the female as in the male. I can not now remember of ever having seen a pronounced case of dropsy in a bitch. Percussion of the abdomen in pyometra gives a dull and heavy sound, in contrast to the hollow tympanic sound of dropsy. On palpation, one can usually distinguish the two horns of the uterus. The enlargement in pyometra is much heavier than dropsy. There is very often more or less ascitic fluid present with pyometra.

TREATMENT

The most logical mode of treatment is, of course, the surgical removal of the uterus, since this forever removes the possibility of recurrence. This, however, is not always feasible. Owners of breeding bitches often hesitate, even though the life of the bitch is at stake. In old dogs an operation is not always practical. In acute cases, with septicemic symptoms, the operation is attended with danger. Of late I have had a nest of these cases, where an operation was not possible, and consequently was forced to attempt treatment. The results so far have been very satisfying. This may be due as much to luck as to the scientific application of treatment.

I start the treatment with vaginal douches of large quantities of hot water. These are repeated every four hours until discharging takes place. In addition to this, gossypoid, which is an alkaloid of cottonroot bark, is given in doses of from $\frac{1}{6}$ to $\frac{1}{2}$ grain, three or four times a day. The action of this drug is to

stimulate the contractions of the uterus. In some cases Abbott's mixed infection bacterin (canine) is used. The discharge usually starts inside of 36 hours. When this is accomplished the douching is stopped. As soon as the uterus appears, on palpation, to be fairly empty, I inject dichloramine T in chlorcosane. From one to four ounces of a 0.5% solution is injected as far into the uterus as possible. If the posterior quarters of the dog are raised, the oil will flow well forward into each horn. These injections are repeated every second day as long as it is possible to pass a small catheter through the os uteri.

Should the uterus close and more pus accumulate, the douches would be repeated. Never have I had to do this more than once. When I feel that the uterus is not going to refill, I stop the gossypoid. In these cases where the bacterin was used, there was no appreciable difference in the course or outcome of the condition.

CASE REPORTS

The first case I attempted to treat in this manner was an Irish terrier, 9 years old. Following her season a year ago last fall, she had a terrible hemorrhage which nearly killed her. I saw her a few months after this and she was suffering from repeated attacks of indigestion, with a great deal of gas. Nothing I can give her will give her permanent relief from this symptom. I have tried to get the owner to consent to a hysterotomy, but have not succeeded. Her spring season last year was uneventful, but last fall, shortly after she went out of season, pus began to form and by the time the owner noticed it a great deal was present. After the third douche, using six quarts of very hot saline solution, she began to discharge so profusely that I had to bolster the heart to prevent collapse. The discharge stopped on the fourth day and another smaller douche was used, which started the pus, and this time she cleaned out entirely. She had four injections of chlorcosane and three doses of bacterins. Up to six weeks ago there was no recurrence.

A fox terrier, of 14 years, had a very profuse season which terribly weakened her. About a week later I observed the distention of the uterus. One douche started the pus but after discharging for 24 hours it abruptly stopped, necessitating a second douche. She was given five doses of oil, but no bacterins. Both of these dogs are about to come in season and I am anxious to see what sort of a time they will have.

I attended a Pekinese, 4 years old, a year ago last Christmas, for dystokia, with one dead and three live puppies. She had metritis following this and I douched her four times with a weak Lugol's solution and apparently she cleaned up. Her summer season and that of last winter were apparently normal so far as the owner, a breeder of some experience, could tell. About three months from her last season she was brought to me with a badly distended uterus. I gave her bacterins and gossypoid, with instructions to douche. The woman lived alone and had poor success douching, so that when she came back in five days there were no results. She had to make a trip of thirty miles, so that I could not douche for her. I repeated the bacterin and increased the dose of gossypoid, with no results. After the fourth dose of bacterin, the woman was able to give a good douche and the discharge started. I saw the dog three times after that, at varying intervals, at which times I gave bacterins and oil. In all, she had seven doses of bacterin, three injections of chlorcosane, and gossypoid $\frac{1}{2}$ grain, three times a day, for a period of four to five weeks. So far she has no recurrence, but of course only a month has elapsed since the treatment was finished.

I truly believe that the gossypoid aids in producing the discharge of pus. Chlorcosane and dicloramine T have proven to be a wonderful antiseptic application for external wounds, and I think it will prove equally efficient in the uterus. I am using it in all of my cases of metritis.

NEARLY FIVE MILLION CATTLE UNDER SUPERVISION IN TUBERCULOSIS ERADICATION

A report just issued by the United States Department of Agriculture, summarizing the status of tuberculosis eradication work at the beginning of September, shows nearly 5,000,000 cattle under supervision for the eradication of the disease.

A total of 661,260 cattle, including both beef and dairy breeds, are in fully accredited herds. Nearly 3,000,000 cattle are in herds that have successfully passed the first test in process of becoming accredited. The remainder are in herds that are not yet free from tuberculosis and are under supervision of varying stages.

The popularity of the tuberculin test is indicated by a waiting list of more than 145,000 herds that will be tested as soon as Federal and State veterinary inspectors can get to them.

VETERINARY EXTENSION WORK IN KENTUCKY¹

By T. P. POLK, *Lexington, Ky.*

Field Agent in Veterinary Science, University of Kentucky

The duties of the Extension Veterinarian are varied and must of necessity cover a wide field. He aims to serve the community in that his attention is directed toward such conditions as would affect a number of animals, or even spread from one farm to another, rather than to individual cases that can readily be handled by a local practitioner. He is better enabled to do this through the aid of the county agents and local veterinarians. So far as possible, the work of the Extension Veterinarian is being carried out in the form of projects, which are outlined as follows:

1. Educational and demonstrational work on the importance of tuberculosis eradication.
2. Farm sanitation.
3. General field diagnosis of infectious, contagious and parasitic diseases and preventive medicine.
4. To discuss with farmers the manifestation of disease, the importance of early recognition of sickness and the care of sick animals.
5. The promotion of co-operation among veterinarians, county agents and live stock interests.

The tuberculosis projects consist of educational work carried on in cooperation with county agents, local practicing veterinarians, state and federal forces, stockmen and other allied interests engaged in tuberculosis eradication.

The project on farm sanitation is an important phase of the work, since the recurrence of disease and serious economic losses may result from a failure to combat the causative factors of the more serious infectious and parasitic diseases, such as hog cholera, Johne's disease of cattle (infectious bacterial enteritis), tuberculosis, glanders, blackleg, sheep scab, scabies of swine, and intestinal parasites. When the virus that produces a certain disease, and the parasites which carry it, are allowed to remain on the premises, in places not exposed to the sun, or without proper sanitation, they are often capable of causing subsequent outbreaks, a fact which is sometimes hard to impress upon the

¹Read before the annual meeting of the Kentucky Veterinary Medical Association, Lebanon, Ky., July, 25-26, 1923.

farmer and stockman, since the organisms are too small to be seen with the naked eye. If, on the other hand, they were large enough to be seen, the importance of their being destroyed would be self-evident, and so would immeasurably lessen the task of explaining the value of sanitation.

Much service has been rendered the stockmen and farmers by the Extension Veterinarian, through visits to the farm to detect disease and determine its nature. If a positive diagnosis can not be made from a study of the sick animals, it is advisable, when possible, to hold a post-mortem examination. The animal selected for such examination should be a typical specimen, in an advanced stage of the disease. It is often necessary to collect suitable material from a sick or dead animal, and forward it to the laboratory for confirmation of conclusions made from field observations, or to establish a correct diagnosis. As soon as a positive diagnosis is made, proper treatment and prevention may be outlined.

Field work in cooperation with the private practicing veterinarian is of great value to the Veterinary Department of the University, in its various research projects. In counties where there is a farm advisor or county agent, the work of the Extension Veterinarian is carried on with less difficulty and with a better understanding between all parties than in a county without an advisor.

Another opportunity given to the Extension Veterinarian by the county agent and local veterinarian is that of meeting the members of the different organizations of farmers in the community. Thus, he is enabled to present his projects to some he might otherwise never reach.

Much success is due directly to the educational policy which enables the live stock owner to understand his problems. Thus he is willing and anxious to cooperate with the Extension Service, the county agent, and the local practitioner. As stated in the introduction, it is not the purpose of the Extension Veterinarian to render service of a personal nature, but rather to give demonstrations and advice regarding the problems of those animal diseases that concern the live stock interests in a given community or in the state as a whole.

Considerable interest has been manifested by the local practitioner for the control of infectious abortion in cattle and swine. The yearly death-toll of this disease in cattle exceeds, in money value, the losses from any other disease affecting cattle. This

is especially true as concerns dairy cattle. The Extension Veterinarian is glad to cooperate with the local practitioner to the best of his ability to determine if disease exists in the herd by assisting him in the drawing of blood for laboratory diagnosis. Recommendations have been made for such sanitary measures as would seem necessary to control infection. Where infectious abortion exists in a herd and vaccination is indicated, it is usually determined by blood tests. Criticism of using live organisms is eliminated by vaccinating, with live cultures, only those herds where the disease is proven to exist.

Collection of blood from cattle is made by bleeding from the jugular vein. The point of introduction of the needle is first rendered sterile by tincture of iodine. A fresh needle is used on each animal, when possible, and the hands are thoroughly washed to remove any blood which might possibly contaminate the blood of a healthy animal.

The problem of abortion in swine is practically along the same line as that of cattle. Swine are bled from the tail. The procedure is as follows: First clip the hair from the tail with a pair of scissors. The tail is usually massaged with a cob to stimulate circulation, then thoroughly washed with soap and water and dried with a clean towel; then disinfected with alcohol and about one-half to an inch of the tail is severed, either with a sharp knife or pair of scissors and blood is collected in a sterile tube which is numbered on the stopper. Identification is made possible by having the name of the animal correspond with the number on the bottle. Subsequent bleeding can be controlled by tying off the end of the tail with a cord. The fresh wound is then disinfected with tincture of iodine.

Abortion infection seems to be a problem not only of today but also one of our outstanding financial questions of disease control of tomorrow, for this disease seems to be spreading at an alarming rate, which, in a large measure, is due to the unscrupulous methods practiced by some stockmen in disposing of infected animals which are introduced into clean herds. In other cases, disease is transmitted into healthy herds through the ignorance of the seller when disposing of diseased animals.

Recommendations have been made to owners who have clean herds to guard against the introduction of infection by conducting blood tests on new additions, thus safeguarding, in a measure, the introduction of abortion. Infected animals should be eliminated from the herd because they are capable of spreading

infection, even though they have established their own immunity and carry, to maturity, healthy, living offspring.

From a sanitary standpoint, diseases in herds are almost impossible to control, unless the spreaders are eliminated, as the abortion organism is believed to be transmitted through digestive tract by contaminated feeds.

UNUSUAL LESIONS

An unusual post-mortem report was recently received by the Bureau of Animal Industry, covering the slaughter of seventeen reacting cattle, one of which was reported as having no visible lesions. Of the remaining sixteen cattle, eight were reported as having prescapular lesions, three of these eight being reported as prescapular lesions only. In addition to that, one animal was reported as showing a precrural lesion only, while one animal showed marked, acute, generalized tuberculosis. This was of such an unusual character as to lead to an investigation which indicated that one animal was probably the center of infection of the entire lot, as the cattle were known to have intermingled for some time. The unusual character of the lesions was not accounted for. However, this investigation indicated that this lot of cattle was a very good demonstration of the infectious character of the disease under ordinary circumstances and in the average community.

FOR PROSPECTIVE VETERINARY STUDENTS

The Division of Veterinary Medicine of the Michigan Agricultural College has prepared two very presentable pieces of literature for distribution among prospective veterinary students. One of these is a brochure of sixteen pages, profusely illustrated with views of various buildings and campus scenes at the East Lansing institution. The other is a less pretentious booklet, evidently intended for insertion in correspondence, bearing the title, "Veterinary Medicine and Its Opportunities." This is an excellent exposition of the attractiveness of veterinary medicine for a career.

The alarm clock causes more men to rise than ambition.

Everytime a man loses his temper another gains his point.

DOUBLE INTRADERMIC TUBERCULIN INJECTION

By G. E. GOLDEN, *Sioux City, Ia.*

Veterinary Inspector, Bureau of Animal Industry

In making observations on herds where the double injection was used, and from which ninety-five reactors were removed, the vulva injection was found a valuable adjunct in classifying the reactors. Slightly more than five per cent of the animals classified as reactors failed to give some degree of reaction to both tests. A number of animals gave but a very slight reaction to the caudal-fold injection and without the additional vulva reaction in these animals they possibly would have been classified as suspicious. Ninety-one of the ninety-five reactors were slaughtered and three failed to show visible lesions. The no-lesion animals gave well-marked reactions to both injections and were removed from herds where a large percentage of infection was found.



Fourteen-year-old cow showing a double reaction to an intradermic tuberculin test seventy-two hours following injection of the left caudal fold and left labia.

The reactions to the vulva injection were all definite. The tissues surrounding the point of injection were firm and hard to the touch and could be readily distinguished from the soft tissues of the normal labia. In some reactions, where the swelling was intense, there was an inflammation of the surrounding mucous membrane. In other reactions where the swelling was more intense there was a proliferation of the mucous membrane, giving the surface a crusty, yellow appearance.

The vulva injection was made on the marginal line between the internal and external labia, about one inch above the inferior commissure. In hogs the injection is made on the line between the internal and external labia. The reaction to this injection in hogs consists of a swelling which is usually circumscribed and from the size of a pea to that of a cherry.

In contrast to the soft tissues of the normal labia the reaction is well defined, firm and hard to the touch. This site of injection in the hog appears to give better results than when the injection is made in the ear. Observations in hogs were made seventy-two hours following injection.

The almost constant reaction of tuberculous animals to both injections would make this extra injection appear almost unwarranted were it not for the confidence it instills in the operator to classify, as reactors, animals in which there is only a very slight reaction in the caudal fold. Two of the ninety-one reactors slaughtered and condemned as generalized cases would not have been classified as reactors to the caudal-fold reaction alone, as in each case it was very slight.

When the double intradermic injection is used, unusual care should be taken to insure that a proper injection has been made of both the caudal fold and vulva, in order that the usual reaction of these tissues in tuberculous animals will follow. The absence of a reaction to either injection would no doubt be confusing to the operator, who, on observation, found but one slight reaction.

In ninety-five animals classified as reactors to the intradermic test, where a double injection was made, the following reactions were found to each injection.

	Caudal Fold	Vulva
Negative.....	4	1
Slight.....	29	31
Well Marked.....	55	42
Extensive.....	7	21

Better little talent and much purpose than little purpose and much talent.

Hold yourself responsible for a higher standard than anybody else expects of you. Never excuse yourself. Never pity yourself. Be a hard master to yourself—and lenient to everybody else.

CLINICAL AND CASE REPORTS

(Practitioners and others are invited to contribute to this department reports of unusual and interesting cases which may be helpful to others in the profession.)

AN UNUSUAL CASE OF RABIES

By B. M. LYON, *Pearl River, N. Y.*

*Assistant Director, Veterinary Department
Lederle Antitoxin Laboratories*

Having come in contact with and observed a large number of cases of rabies in the past few years in connection with diagnostic work upon this disease and also through a large amount of experimental work conducted at the Lederle Antitoxin Laboratories, I desire to describe here briefly a case which has been brought under my observation which has been of particular interest due to the extraordinary presentation of symptoms or course of the disease.



An Unusual Case of Rabies

This dog as shown in the accompanying photograph, a cross between an Irish terrier and French poodle, was brought to the laboratories August 16 for observation. The history obtained from the owner was quite typical. He described the dog as a very dear and friendly household pet, which never left the household without the knowledge of the owner and therefore the utter impossibility of his dog ever having been exposed to the disease. Nevertheless this same pet disappeared from the owner's threshold August 15, was gone all night and returned

about noon the following day. The owner noted a change in the dog's disposition upon his return and while endeavoring to account for the condition the dog attacked another dog and also bit two children. Immediately it was placed into a box and brought to the laboratory.

The symptoms noted were those of extreme alertness and watchfulness with a vicious attack at any object thrust in his direction. No barking occurred until the third day, at which time it appeared normal in tone and not the characteristic tone produced when paralysis of the vocal cords and throat muscles has started. A small amount of food and water was consumed, respiration was accelerated, pupil dilated but would accommodate when placed in sunlight. Practically no change was noted in the symptoms presented until the evening of the fifth day, when a slight change in the tone of the voice was noted; the same degree of viciousness remaining. The morning of the sixth day a slight incoordination of movement was shown and by noon time paralysis had become general and the animal was unable to rise to its feet. The dog died on the evening of the sixth day, a positive diagnosis being established by microscopical examination.

We therefore have here a case of rabies which remained in the nervous, excitable or vicious stage of the disease for a period of six days, paralysis developing on the afternoon of the sixth day and death following within a few hours. It has been our experience that once symptoms are shown, paralysis is noted about the second or third day, death following on the third or fourth.

PETECHIAL FEVER

By ROY F. HESS, *Ames, Iowa*

Senior Veterinary Student, Iowa State College

The following case was assigned to me at the clinic of the Iowa State College, May 9, 1923.

A family driving mare, age 30, began showing the following symptoms, about a week previously: There were petechial and ecchymotic hemorrhages on the nasal mucous membrane and septum nasi. The oral mucous membrane and conjunctiva were anemic and the lips showed an ulcerative stomatitis. The limbs were edematous from the elbow to the fetlock and stifle to fetlock. The proximal border of the edematous areas showed definite demarcation. The limbs were about twice their normal circum-

ference and were quite sensitive when palpated.

The general condition was very bad, and the animal was emaciated and weak. Pulse, 48; respirations, 30; temperature, 101.2.

On May 10 there was a dark-brown, fluid discharge from both nostrils. The pulse was 50; respirations, 26; temperature, 100.8. The conjunctiva of the left inferior lid was congested, but the others showed no changes.

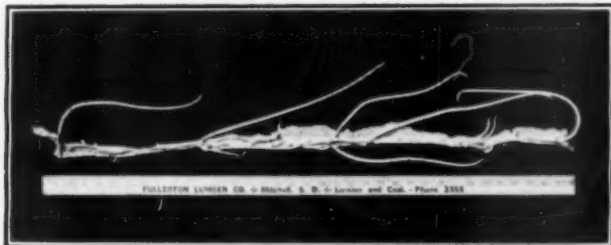
May 11. Pulse, 96; respirations, 32; temperature, 103.7. The animal was off feed, and the conjunctivae of both eyes congested. The bilateral nasal discharge was more copious and tinged with blood. The wings of the nostrils and the lips were edematous and about twice normal size. The swelling on the nose ended about where the nose-strap of the halter crosses the nose. The respirations were labored, and the edema of limbs more extensive.

The animal was destroyed without treatment. The case is reported with the thought that it might be interesting on account of the age of the animal, and the fact that a very typical case of purpura developed without any known predisposing factor being present, other than the extreme age and poor condition.

BIG ONES THIS TIME

By G. G. FABER, *Mitchell, S. D.*

The accompanying photograph shows a section of intestine about a yard long, taken from a hog, which showed an infestation with *Echinorhynchus gigas*, in which the specimens of this worm



Echinorhynchus Gigas

were unusually large. Cases have been seen in which the parasites were considerably more numerous, but in this case they appeared to be very large. One of the specimens measured slightly over 14½ inches in length.

REVIEWS

TRAITE DE THERAPEUTIQUE CHIRURGICALE DES ANIMAUX DOMESTIQUES. (Treatise of the Surgical Therapeutics of Domestic Animals). P. J. Cadiot and J. Almy, Professors at the Alfort Veterinary College. 3rd edition. First volume, 979 pages, with 314 figures in the text. Published by Vigot Freres, Paris, 1923. Price 50 francs.

The book is divided into four parts, (1) dealing with general surgery, (2) affections common to all tissues, (3) affections of particular tissues, such as skin, serous membranes, etc., and (4) affections of different regions. Part one is divided into chapters on restraint, anesthesia, antisepsis, hemostasis, etc., in the different animals.

In this work the authors have maintained the high standard of excellence of previous editions. The preparation of the present work was started in 1915, and, as may be expected, has been subjected to many revisions. Its completion was greatly delayed on account of the unprecedented difficulties incident to the war. The authors, as well as the publishers, are to be congratulated upon the successful completion of their task.

LES MALADIES DU CHEVAL. (Diseases of the Horse). F. Breton and E. Larioux. Fourth edition, revised and enlarged. XXIV—498 pages. Published by Vigot Freres, Paris, 1923. Price 20 francs.

In this new edition the authors have not seen fit to change the form and style of previous editions, which met with the hearty approval of the profession. Several new chapters have been added: Bots, cutaneous habronemiasis, blood transfusion, general anesthesia, pyotherapy, electro-ionic medication, and quite a number of the newer operations. This book, which is one of a series, is really a hand-book and appears to offer, in a very convenient form, quite a fund of useful information for the busy practitioner.

ABSTRACTS

THE CAUSAL ORGANISMS OF BOVINE ACTINOMYCOSIS. T. J. Bosworth. Jour. Comp. Path. and Thera., xxxvi, (1923), 1.

The writer made pathological and bacteriological studies of 34 cases. Thirteen were due to a streptothrix. The others were associated with the actinobacillus. The latter group was similar to the organism described by Lignières and Spitz, in Argentine.

F. S. J.

BACTERIOLOGIC STUDY OF PNEUMONIA IN SHEEP. Robb Spaulding Spray. Jour. Inf. Dis., xxxiii (1923), 1, p. 97.

A detailed bacteriologic study of two types of pneumonia in sheep, under slaughter-house conditions, is reported. The first a rather edematous type, was found frequently in spring lambs, while the second, a purulent, chronic type, found only in older sheep, was often associated with lesions of caseous lymphadenitis (pseudotuberculosis).

Pasteurella ovisepiticum was isolated, in mixed culture, from four cases of the edematous type and in pure culture from a castration abscess in a lamb. From one case of the chronic type of the disease in older sheep this pastuerella was isolated in pure culture once, and five times in mixed culture.

The morphologic and cultural characteristics of the true *Past. ovisepiticum* are described, special emphasis being laid on the odor produced and the appearance of the surface colonies on plain- or blood-agar plates, as a means of diagnosis of the pastuerella group.

Two groups of organisms, closely related, and very similar to the true pasteurella type, were frequently isolated in pure or mixed culture from the lambs and once in mixed culture from old sheep. These two types were differentiated by a slight difference in growth in glycerol, and by agglutination and absorption tests. They were separated from the true pasteurellas by their action on blood agar, maltose and glycerol. Intermediate strains, which seemed to connect these two strains together and to the true *Past. ovisepiticum*, were also isolated.

A gram-positive diplococcus was isolated a number of times from suppurative, pneumonic areas, associated with lesions of caseous lymphadenitis in the older sheep. This organism was distinguished from the common infections streptococcus by its proteoclastic activity on milk, gelatin and blood serum.

A gram-negative diplococcus of the type *M. catarrhalis* was isolated in pure culture from two cases of pneumonia in lambs, in mixed cases from several more and from two cases of pneumonia in older sheep in mixed culture.

The true *Past. ovisepiticum* was found to be highly pathogenic for mice, guineapigs, and rabbits.

The intermediate strains, which seemed to connect the true pasteurella to the pasteurella-like organisms found in these conditions, were highly pathogenic for mice and guineapigs, but less so for rabbits. These two strains cross-agglutinated to full

serum titre and mutually cross-absorbed agglutinins, and were found to be identical in cultural characteristics with Giltner's non-virulent organism called "atypical *B. ovisepiticus*."

S. S.

A DIPLOCOCCUS ASSOCIATED WITH CASEOUS LYMPHADENITIS AND PNEUMONIA OF SHEEP. Robb Spaulding Spray. Jour. Inf. Dis., xxxiii (1923), 2, p. 161.

Infection of the thoracic lymph-nodes, simulating "ovine caseous lymphadenitis," was observed frequently accompanying a chronic type of pneumonia in sheep.

The lesions in the lymph-nodes were characterized by an accumulation of greenish, creamy to caseous pus, contained in a thickened capsule of connective tissue which, to a large extent, replaced the normal lymphatic tissue. In many cases the condition extended to the lungs, often leading to an extensive necrosis of almost an entire lung, which showed areas of encapsulation enclosing large quantities of a semi-fluid, necrotic mass made up of many leucocytes and lung tissue in various stages of disintegration.

A gram-positive diplococcus was found in these lesions, either in pure culture or associated with *Pasteurella ovisepiticum*. This organism was only slightly hemolytic when isolated, but become more actively so on cultivation. It rapidly liquified gelatin and Löffler's serum, and peptonized milk without coagulation. Injections of cultures were fatal to white mice and guinea pigs and in one instance each to a kitten and a puppy. In all cases, lesions found in the liver of these animals were similar to the lesions in sheep, from which the organisms were originally isolated.

Injections into rabbits were followed by negative results, the author concluding, from a few experiments, that the organism was not pathogenic for these animals. All strains were identical agglutinatively. Antiserum for three strains protected white mice against doses of the homologous strains fatal to unprotected mice.

Reviewing the literature on pyogenic infections of sheep, the author concludes that this is probably an undescribed diplococcus which may be regarded as at least a complicating factor in ovine lymphadenitis and in certain types of sheep pneumonia.

S. S.

AMERICAN VETERINARY MEDICAL ASSOCIATION
Proceedings of Sixtieth Annual Meeting, Montreal,
Canada. August 27 to 31, 1923.

(Continued from p. 255, November Journal)

TUESDAY AFTERNOON, AUGUST 28, 1923

The meeting convened at 2:45 p.m., President Welch presiding.

PRESIDENT WELCH: Gentlemen, will you please come to order? The first thing is a report from the Executive Board.

DR. WAY: The report as presented by the Secretary yesterday constitutes the work that the Board has completed up to the present time. Therefore, we simply have to report progress, and will have the final report at the next general session.

PRESIDENT WELCH: Gentlemen, we have now arrived at the time for the election of officers for the ensuing year. Remember, kindly, that the time for presenting the claims of your candidate is limited to two minutes. Also, in voting, kindly remember that only those whose dues are paid for the current year are entitled to vote. I will declare nominations in order for President for the ensuing year.

DR. J. G. FERNEYHOUGH: I find myself, gentlemen, in a rather embarrassing position up here. This is the first time I ever left the United States to come into Canada, and I have had a delightful time, but yet I am bound to get on my feet to nominate a man from the old United States. It places me somewhat in a position that reminds me of a joke told down in our country, soon after the Civil War.

A darky down there thought he would take things by storm, so he dressed up in a dress-suit, ran up and down the streets of Richmond, and fired a gun several times. Some parties came out and shut him up and hung him up on a post in the middle of the street, and wrote across his white shirt front, "*In statu quo.*"

Everybody who came along wanted to know what that meant. They sent for a school teacher to come and decipher the meaning. He said, "Gentlemen, I am a little rusty on my Latin, but I believe I can tell you what it is. It means, 'I am in a hell of a fix.' " (Laughter.)

Now, the Canadian people have treated us so nice, and that adds to my embarrassment.

Gentlemen, I am going to present to you Dr. C. H. Stange, of Ames, Iowa, as your next President. (Applause.)

In so doing, I am not taking any chances. I know I am putting before you a man who has done much for the profession and still more for the practitioner. Gentlemen, it is up to us to take care of our profession. I understand a gentleman is going to be nominated here, from Canada, and I wish to goodness I could vote for him, too. He is a splendid fellow. It will soon come back East and then Canada can get it. It looks as if the convention is going West this next year, and let's give the honor to the man in his own country.

DR. C. A. CARY: I do not wish to take much of your time.

I pride myself on being an American who has been a member of this Association since it was changed from the United States Association to the American Association, to take in all the Western Hemisphere. I am proud of the fact that this Association represents North and South America and all the islands in the Western Hemisphere. We are today meeting in the land of the Canadian, the Canadian who has stood by this Association and has had two Presidents. I believe it would be a great honor to elect a Canadian to go down to the State of Iowa and preside. (Applause.)

I am an Iowa man by birth, and I have enough magnanimity in me to extend the hand across the line and say, "God bless you, Canada."

Therefore, I nominate a man who has been Assistant Veterinary Director-General of this great country of Canada, who bids fair to be appointed to the highest position in the veterinary profession in this country, and I say, as an American and as a United States man, I consider it a great honor to nominate Dr. George Hilton, of Canada, for President of this Association. (Applause.)

DR. D. H. UDALL: Mr. President, Gentlemen of the Association. This selection of a president of the Association is a cold-blooded matter. We cannot afford to let our decision rest upon personal regards, patriotism or honorary positions. We have reached the point where we wish to offer our positions to every single man, whom we can draw into them, of the highest ability. We already have within the Association the man who was nominated by Dr. Cary, and he is doing a tremendous work for the Association. Let us appreciate and thank him for his services, and continue him on the job.

Our Association is not large enough now, our interests are not so extensive but what we must look at this in a purely

cold-blooded manner, and keep the best man in the best place for which he is fitted at the present time and disregard honorary matters.

The man who was first nominated for President, Dr. Stange, is a man of wide experience, a man of great administrative ability, lives in the center of this country most densely populated by veterinarians, is a man who has been in touch for years with the matters pertaining to veterinarians. I believe he is a man eminently fitted for the position; therefore, I take great pleasure in seconding the nomination of Dr. Stange.

DR. A. H. BAKER: I was very pleased to hear the member from the United States propose as President one who is a resident in Canada. I don't ask support for him because he is a Canadian, but I do feel I can ask for his support because he has taken a very prominent part in every way in the affairs of the Association. I think Dr. Hilton has shown by his past history that he appreciates what this Association stands for, and I think that he would fill the position of President with a great deal of credit to the Association, and as well to the country of which he is a citizen.

I take great pleasure in seconding the nomination of Dr. Hilton as President of this Association. (Applause.)

DR. D. S. WHITE: Mr. President, Veterinary medicine in North America knows no international boundary. After all, while we may serve under different flags, we are all Americans. One of the most delightful experiences of my months in France was to visit the Canadian Unit, a veterinary unit. The commanding officer insisted upon accompanying me, through the mud, back to my automobile, through a downpour of rain, for a mile and a half. I said to him, "There is no need of your doing this."

He said, "I would like to go with you."

I said, "Why?"

He said, "I have been out here in this mud and rain for four and a half years, and you are the first man from God's country who has visited my command." He was a Canadian, and I from the United States.

Whether Dr. Hilton or Dr. Stange be elected to the presidency of this Association will mean that a good man will be at the helm. However, I believe, on account of his long and faithful and efficient service, on account of his administrative ability, and for the reason that he represents the front rank of the new

crop of veterinarians who must come on and take the places of those of us who have rendered our service, I, therefore, take great pleasure, for the reasons given, in seconding the nomination of Dr. Stange for President. (Applause.)

DR. W. L. THAYER: I would like to second the nomination of Dr. Stange for President.

DR. STEEL: Mr. President, Gentlemen: As a practitioner from Iowa, as a practitioner from the Central West, I wish to second the nomination of Dr. Stange for President of the Association. Dr. Stange has the full confidence of the practitioners in Iowa, and, as Secretary of the Iowa Association, I place a great deal of reliance in his advice. At this particular time, when you are expecting to do things for the practitioners, we feel that you should put this in the hands of a man whom we feel capable of guiding our affairs. I know Dr. Stange to be very conservative. In these trying times we need a conservative man in the chair. As a practitioner from Iowa, I want to say that he has the hearty endorsement of the practitioners in that state. (Applause.)

. . . Dr. F. T. Daubigny, speaking in French, seconded the nomination of Dr. Hilton . . . (Applause.)

PRESIDENT WELCH: Are there any further speeches? If there are no further nominations, I will declare the nominations closed. While we are waiting for a black-board, on which to write the names of the Vice-Presidents, I think it would be wise to elect our Treasurer. I will, therefore, declare nominations for Treasurer in order.

DR. C. WAY: Mr. President, it is no use for me to make any long-winded speech for the candidate for Treasurer. We have a custodian of the funds who has acted as a chancellor of the exchequer for four or five years. His accounts have always been above criticism; he is bonded to the fullest extent of the law, and he has served well and faithfully.

I want to place in nomination Dr. Jacob, of Tennessee. (Applause.)

DR. CARY: I want to second that nomination.

DR. L. A. MERILLAT: I want to second that nomination.

. . . It was voted, on the motion of Dr. J. T. Hernsheim, duly seconded, that the nominations be closed . . .

DR. CARY: I move the by-laws be suspended and the Secretary authorized to case a unanimous ballot for Dr. Jacob.

. . . The motion was seconded and unanimously carried.

Secretary Hoskins cast the ballot for Dr. M. Jacob, for Treasurer for the ensuing year (Applause.)

. . . Secretary Hoskins read a telegram received from Dr. W. C. Woodward, the Secretary of the Bureau of Legal Medicine of the American Medical Association:

"Will not the American Veterinary Medical Association appoint a committee to act for it in the development and enactment of federal and uniform laws to regulate the sale of clinical thermometers? The American Medical Association, the Federal Bureau of Standards and manufacturers are interested in this movement."

SECRETARY HOSKINS: You will recall yesterday three or four communications were reported from Dr. Woodward, and I take it that it is an indication that the American Medical Association believes that the cooperation of this Association is worth having in a number of these legislative matters which are before us at the present time.

PRESIDENT WELCH: Dr. Frank Hayden desires to speak to us a moment.

DR. HAYDEN: Thank you, Mr. President, for this opportunity to say a word in reference to this telegram which has just come in. I know nothing as to why it came, but as I represent Becton, Dickinson & Co., a leading manufacturer of clinical thermometers, I do know something of the conditions which prevail in the country concerning clinical thermometers, which make this telegram very opportune.

For years there have been many undependable instruments marketed, so much so that the states are recognizing the situation and many of them are considering a set of specifications or regulations pertaining to the clinical thermometers that may be marketed within that commonwealth or state.

If this is followed out, it will bring about a different set of specifications in each state; so it is desirable (rather than have forty-eight different codes—meaning that if you buy a thermometer in one state and step across the border into another, your instrument may be confiscated and you may be under the ban of some criminal law) that a Federal statute be enacted covering the entire country, and this telegram is toward bringing about this condition. It would give us one law rather than forty-eight covering this situation.

PRESIDENT WELCH: Gentlemen, we will proceed with the nominations for Vice-President. There are five to be elected.

You may nominate as many as you choose, from any district of our jurisdiction. The five receiving the highest number of votes will be elected. I will declare nominations in order for Vice-President.

DR. COTTON: I wish to nominate Dr. H. E. Kingman, Fort Collins, Colo.

DR. C. S. CHASE: I wish to nominate a man who for twelve successive years never failed in the performance of his duty as Secretary and President of the New York City Association, Dr. Robert S. MacKellar.

DR. W. M. BELL: I want to place in nomination a gentleman from the South, Dr. Hamlet Moore, of New Orleans.

DR. H. W. TURNER: I nominate Dr. J. G. Ferneyhough.

DR. H. E. BEMIS: I nominate Capt. R. A. Kelser to represent the Army Service.

DR. N. S. MAYO: Mr. President, I would like to place in nomination one representing our French-speaking members, Dr. F. T. Daubigny, of Montreal. (Applause).

DR. H. S. MURPHEY: I would like to place in nomination a man representing nearly the East, or close to it, Dr. Henry W. Turner, of Pennsylvania.

DR. J. T. GLENNON: I second the nomination of Dr. MacKellar.

. . . Dr. F. W. Morgan, of Tennessee, was nominated. . . .

DR. J. H. BLATTENBERG: I will second Dr. Moore's nomination.

. . . Dr. Ferneyhough's nomination was seconded. . . .

DR. A. T. KINSLEY: I would like to place in nomination Dr. G. H. Hart, of California.

DR. MAYO: I think we have a good array to vote for, and, if there are no more nominations, I move that the nominations be closed.

. . . The motion was seconded and carried. . . .

PRESIDENT WELCH: Gentlemen, I will let you hear the results of the election for President. There were 244 votes cast. Dr. Stange received 146 and Dr. Hilton 98, Dr. Stange, having received the higher number of votes, I will declare him elected President of this Association for the ensuing year. (Applause.)

DR. GEORGE HILTON: Mr. President, if I am in order, I would like to be one of the first to congratulate Dr. Stange on his election. I wish to state I am not out of a job, and I want to assure him that, as a member of the Executive Board, I shall

be only too glad to give my whole-hearted support to any measures that may come before that Board for the advancement of this Association. (Applause.)

DR. C. A. CARY: I want to move that the vote for Dr. Stange be made unanimous.

DR. A. H. BAKER: I second Dr. Cary's motion.

. . . The motion was carried. . . . (Applause.)

PRESIDENT WELCH: Gentlemen, it gives me great pleasure to present to you your new President, Dr. Stange, of Iowa. (Applause).

DR. STANGE: Gentlemen, I find it difficult to locate words with which to express my appreciation of this honor. I regard it as an honor and recognition, more of the veterinarians of the State of Iowa, than as a personal one. I deeply appreciate the words spoken by Dr. Hilton, who is one of my best and warmest personal friends. I am very glad that there was no personal feeling whatever in this matter. I want to assure the members of this Association that the work of the organization will receive my best efforts, and all I ask for is your cooperation.

Again thanking you, I hope that next year will be a successful one. (Applause.)

PRESIDENT WELCH: Now, gentlemen, there are nine nominees for Vice-President, five of whom are to be elected. You will vote for five men — no more — and the five receiving the highest number of votes will be elected. They are Dr. Kingman, Colorado; Dr. MacKellar, of New York; Dr. Hamlet Moore, of New Orleans; Dr. Ferneyhough, of Virginia; Capt. Kelser, of the Army; Dr. Daubigny, of Canada; Dr. Turner, of Pennsylvania; Dr. Morgan, of Tennessee, and Dr. Hart, of California.

I will appoint as tellers, Dr. Mayo, Dr. Watson, and Dr. Hernsheim.

PRESIDENT WELCH: Gentlemen, at this time it has been customary to extend the floor to representatives of different cities who wish to extend to us invitations for the meeting the following year. The place of meeting is decided by the Executive Board, but this precedent of ascertaining the desires of the Association has been a custom, so I will yield the floor at this time to the representatives of the different cities.

DR. E. R. STEEL (Iowa): As Secretary of the Iowa State Association and in behalf of that Association, I wish to extend to the American Veterinary Medical Association an invitation

to hold its 1924 meeting in Des Moines. We have in Iowa approximately 800 graduate veterinarians, or one-tenth of the veterinarians of America. We have in the adjoining states approximately thirty-four per cent of the graduate veterinarians of America. We feel that we would like to entertain the American Veterinary Medical Association next year.

Our State Association has asked me to invite you there. We have invited you for the last several years, and this year we think you ought to come to Des Moines in 1924. We have in Iowa one of the strongest state associations in this country. We have some 550 active members, and at our meetings we have some 500 or 600 members. We feel that we can give the national association more new members and more new life next year than any other section of this country. We have an ideal convention city. The city of Des Moines, about one hundred thousand population, has ample hotel accommodation, ample facilities for holding the meetings of the different sections. We also have a splendid place to hold a clinic, at the Iowa State College. We think in Iowa that the Iowa State College is one of the best in the world. So I wish to extend this invitation, on behalf of the Iowa Association, and would recommend Des Moines, Iowa, as the place for the next meeting of the American Veterinary Medical Association. (Applause.)

DR. A. T. EVERETT: Mr. President, I wish to extend an invitation for the next meeting of the Association in 1924. Omaha would really be an appropriate place for the next meeting, because Omaha is the mother of the American Veterinary Medical Association.

The American Veterinary Medical Association was organized in '98, when the United States Veterinary Medical Association ceased to function. Omaha would like to see its baby grown to manhood, and asks for the meeting in 1924.

We have every facility there. We have a city of 225,000. We have between thirty and forty veterinarians of the State in that city. It is the fourth largest railroad center in the United States. It is the third largest in live stock industry in the United States. We have one of the largest horse markets at Omaha. In our present market there are from six to seven hundred horses sold at auction every week. That would, of course, interest the gentlemen here. We have a large pavilion that would accommodate the clinics. The Live Stock Exchange

will do all they can to help the city of Omaha entertain the Association, if you meet there. (Applause.)

DR. BEMIS: At the request of President Pearson, of the Iowa State College, and Dean Stange, of the Veterinary Division of that College, and the entire veterinary faculty, I wish to extend an invitation to this Association to come to Des Moines, seconding Dr. Steel's remarks.

Des Moines is thirty-five miles south of Ames, at which place the Iowa State College is located. We have anticipated your coming—I will be honest with you—for some time. We have hoped sincerely that you might come to Des Moines in order that we might have an opportunity to have you come to the Iowa State College, and to visit the Veterinary Division in particular.

I want to assure you that the entire college, which is composed of five divisions, engineering, agriculture, general science, home economics, and veterinary science, will more than welcome you and will turn over every facility for your pleasure, instruction and entertainment.

If you do come, I promise you that the veterinary faculty in particular will put forth every possible effort, and the entire veterinary population of the State will cooperate with the college in putting on a clinic or clinical demonstrations which we feel should be of benefit to the Association.

We could plan to have one day at the College, which will take only a short run on the interurban or train between the two cities.

I sincerely hope you will decide on coming to Des Moines, and that we may have the pleasure of your coming to Iowa State College. (Applause.)

PRESIDENT WELCH: Gentlemen, what is your pleasure? Is it your desire to instruct the Executive Board to act in this matter?

DR. STEEL: I move this Association recommend Des Moines, to the Executive Board, for the 1924 meeting.

DR. J. I. GIBSON: I second the motion made by Dr. Steel.

DR. EVERETT: Iowa has the honor of getting the presidency; I think Omaha ought to have the meeting in 1924.

PRESIDENT WELCH: Gentlemen, it is moved and seconded that we recommend to the Executive Board that the meeting be held in Des Moines in 1924. All those in favor of the motion will signify by saying "aye"; opposed, "no".

. . . The motion was carried. . .

PRESIDENT WELCH: I might say in this connection that Dr. Simms, of Oregon, would like to extend an invitation for us to go to Portland in 1925.

DR. B. T. SIMMS: Mr. President, Gentlemen, in coming before you this afternoon, I represent a section of the country that in the sixty years of the existence of the American Veterinary Medical Association has not had one meeting. From Portland, Oregon, the nearest point to which any meeting during this sixty years has come is more than seven hundred miles away, and, with the exception of two meetings, we have not had one within one thousand miles of the Pacific Coast Northwest.

We realize that we don't have the large number of veterinarians found in the Corn Belt, and we don't expect that the meeting will come to the Northwest every three or four or five years, but we do have a great enough representation on the Coast that we could reasonably expect one meeting in sixty years, and we are extending an invitation to the Association now.

When I say "we", I mean the associations of British Columbia, Washington, Idaho, Oregon, as well as others who have expressed a desire to have the meeting come out there. Although they have not expressed it as an association, they have expressed it personally.

I come representing the Northwest, and ask that in 1925 the Association come to Portland, Oregon. Come out and see the Pacific Northwest, and give us fellows a chance to attend one meeting without having to travel one or two thousand miles.

Last night I estimated that I would have traveled some seventeen thousand miles in attending the last seven meetings of the American Veterinary Medical Association. You see, then, why we do not have large representations from those sections.

As to what we will have in the way of attractions out there, you know, of course, that the Pacific Northwest has come to be known as the "Playground of America" during the summer months. We have a good climate, wonderful scenery, good hotels, good automobile roads leading over the country, wonderful fishing and hunting for those who care to make a vacation along with the trip. We don't want to enter a fight with other sections for this meeting. We hope by extending the invitation that other cities and other groups of men will hold back and leave 1925 for Portland, Oregon. I thank you. (Applause.)

(To be continued)

REPORT OF THE MEETING OF THE WOMEN'S AUXILIARY TO THE AMERICAN VETERINARY MEDICAL ASSOCIATION IN MONTREAL, AUGUST 28, 1923

The Montreal meeting of the Women's Auxiliary to the American Veterinary Medical Association was thoroughly enjoyed by the seventy-five ladies who attended. We were heartily welcomed to Canada by Mrs. M. C. Baker, of Montreal, after which our president, Mrs. G. A. Johnson, gave a splendid address stressing the importance of the Auxiliary and making known the conditions of the Loan Fund.



MISS ANN LORRAINE BLATTENBERG

An opportunity to join was given those present, who did not belong to the Auxiliary. Twenty-two new members were added to our ranks, and all were very enthusiastic and eager that the splendid work being done by the organization should continue to grow in usefulness.

An invitation for a representative of the Auxiliary to come before the general session of the American Veterinary Medical Association was accepted. The object being to tell the men about the Loan Fund in order that its purpose might be more generally known and thus their interest in it aroused. This

was very ably done by Mrs. H. P. Hoskins, of Redford, Mich. (Mrs. Hoskins' address will appear in the JOURNAL, in the proceedings of the Tuesday afternoon session.)

Mrs. R. P. Marsteller of College Station, Texas, was appointed secretary to fill the vacancy caused by the resignation of Mrs. F. A. Lambert of Columbus, Ohio.

The meeting was then turned over to the local ladies who entertained us with music and readings.

A rising vote of thanks was given the ladies of Montreal for the very cordial and royal hospitality extended to us and the meeting closed with the singing of "Old Canada."

The rules governing the Loan Fund will be published in the next issue of the JOURNAL.

MRS. R. P. MARSTELLER, *Secretary*

Among those admitted to the Auxiliary at the Montreal meeting was Miss Ann Lorraine Blattenberg, of Lima, Ohio, who enjoys the double distinction of being the daughter of a very distinguished veterinarian, Dr. J. H. Blattenberg, and at the same time the youngest member of the Auxiliary. Not content with these honors, she recently won first prize in a contest with over two hundred other babies, whose pictures were judged by a Cleveland (O.) art company. The prize was fifteen dollars in gold.



SNAPPED AT MONTREAL

Left to right: Dr. E. A. Watson, Lady Theiler, Professor Porcher and Sir Arnold Theiler.

(Photo by Miss P. E. Gysel)

A PROPOSED POLICY FOR THE A. V. M. A.

The following is a draft of the proposed policy of the American Veterinary Medical Association, as presented at the Montreal meeting by the Executive Board. The outline of this policy was drafted by the Committee on Policy, consisting of Drs. Munce, Chairman, Welch, Merillat, Udall, Mohler, Jacob, Cotton and Hoskins, Secretary, this committee having been appointed for this purpose early in the year.

This policy was not adopted at the Montreal meeting, for the reason that it appeared to be the consensus of opinion that such an important step should not be taken without very calm and mature deliberation, or before an opportunity was given the membership at large to read and study our proposed policy. It was with this purpose in mind that the convention voted to have the proposed policy published in the JOURNAL at some time prior to the 1924 meeting, to be held in Des Moines.

It is being published this month, with the thought that members will have an opportunity to read and discuss it in its various aspects at the numerous meetings of state associations, which will be held during the next few months. It is only by close study and free discussion that the salient features of this proposed policy will be brought out and better understood, so that when it comes up for final adoption, next year, our members will be in a position to vote intelligently—something that could not be expected unless an opportunity has been afforded for reading and studying a draft of the policy beforehand.

FOREWORD

The members of the American Veterinary Medical Association and others interested in the profession often have need of an expression of the opinions, policies and principles of the Association. They wish to know where it stands on matters affecting various interests and what approval, support or opposition may be expected from it for any program affecting the relation of the veterinarian to the public welfare.

It is apparent that this profession is in the midst of an evolutionary period destined to bring about a material change in its relation to economics of modern life. The American Veterinary Medical Association must ever serve the interests of the public, as well as those of the profession. The trend of modern events

demands a capable readjustment of her activities in keeping with other organizations.

In order to avoid misunderstandings, to assist in the passage of wise legislation, recommendations and regulations, to encourage high professional ideals, and to furnish wise counsel and guidance, it is believed that the Association should have and support a definite policy with reference to any subject that may assume importance to the members of the profession.

The Association, therefore, assumes the position of endorsing a definite policy setting forth its purpose and containing recommendations pertaining to the important subjects of agricultural extension, veterinary education, legislation, public health, allied organizations, publicity, regulatory service, veterinary biologics, humane measures and preventive medicine.

The purposes of the American Veterinary Medical Association are to promote and protect the interests of the veterinary profession; to raise the requirements of veterinary education; to procure the enactment of uniform laws and regulations governing the control of animal diseases; to carry out the enforcement of these laws and regulations; to encourage public opinion through various means regarding problems of animal hygiene; and to promote good fellowship in the profession.

AGRICULTURAL EXTENSION

Agricultural extension has for its basic object the promotion and improvement of all phases of agricultural activities. The live stock industry is a most important integral part of agriculture; thus agricultural extension service comes into close touch and relationship with the veterinary profession. Each has a definite and proper sphere of activity; and encroachment of one upon the prerogatives of the other will work disaster.

The limitations of the agricultural extension service may be very properly classified as strictly educational and promotive in character. The work of promotion in the development of better live stock is a part of the proper field of activity of the agricultural extension service, and to this work should be given the hearty cooperation of the veterinary profession.

On the other hand, the problem of protecting those animals from disease and rendering aid to the sick, as well as sanitary and regulatory measures for disease prevention and control, rightfully become the prerogatives of the veterinary profession. The prevalence of or our comparative freedom from such diseases

as hog cholera, anthrax, blackleg and tuberculosis will depend largely on the character of the support given to our profession by the agricultural extension service.

The Association should:

1. Support every effort of the Agricultural Extension Service to increase the production of a better class of live stock, particularly urging the exclusive use of pure-bred, registered sires of good type and conformation and lend every assistance to the establishment of pure-bred herds and flocks.

2. Emphasize the value of sanitary surroundings for animals, the value of proper nutrition and the advantages of orderly marketing.

3. Encourage the establishment of calf, pig, sheep, colt, poultry, corn and other agricultural clubs among the boys and girls.

4. Encourage the promotion of racing, endurance tests and better live stock shows.

5. Cooperate with the various agricultural extension agencies for the betterment of agriculture and the live stock industry.

6. Make provision for a representative of this Association to attend each annual conference of Agricultural Extension Directors.

7. The Association should maintain a correct relationship with all the important pure-bred live stock associations, working with them for the improvement of live stock and the control of transmissible diseases.

8. Veterinarians affiliated with agricultural colleges and agricultural extension services should confine the instruction and advice given to agricultural students and live stock owners on veterinary subjects to:

- (a) The fundamental principles of live stock sanitation;
- (b) First aid, and
- (c) The value of employing competent veterinary services in the diagnosis, prevention and treatment of animal diseases.

VETERINARY EDUCATION

The standard and quality of a veterinary college is dependent upon the ability of its teaching staff, its entrance requirements, the ability of its student body and the perfection of its physical equipment and clinical facilities. The character of service that the college may render and from which its value to the live stock industry may be estimated is directly reflected by the graduates of the institution. If the profession is to rise to the highest

point of service to the live stock industry, preliminary education in subjects directly allied to veterinary medicine must be stressed, while membership in the various veterinary medical associations and post-graduate work for keeping up-to-date are essential.

States contemplating the establishment of veterinary education are advised to provide scholarships for prospective students that will enable them to attend recognized and qualified institutions already established in other states.

Undergraduate veterinary education should be conducted only at institutions approved by the American Veterinary Medical Association.

Faculties of the different colleges in the United States and Canada should correlate their schedules and curricula so that a student may transfer from one college to another with a minimum loss of time and credit.

LEGISLATION

All ills cannot be cured by legislation; much still depends on individual effort through the rendering of efficient service, whether private or public. The Association offers a word of caution against over-legislation. The Association should render assistance in the enactment of all legislation affecting the public's interests.

The Association has a Committee on Legislation, the activities of which have been confined almost entirely to national problems. This Committee should be continued and means be provided so that its activities may be extended to provincial, state and local conditions.

REGULATORY SERVICE

No laws or regulations will succeed in controlling diseases of animals unless veterinarians and owners of live stock are sufficiently interested and familiar with them to assist in such control.

Government control of animal diseases has extended so that those actively engaged in any branch of the veterinary profession have of necessity dealings with state, provincial and federal authorities. In order to promote a better understanding between private practitioners and regulatory officials and to permit greater freedom of individual effort, it is advisable that the following principles be observed.

(1) This Association recognizes the right of the states and provinces to employ veterinarians for the purpose of giving

free professional service for the control of communicable diseases. It does not approve of the state or province denying any class of qualified veterinarians the right to render such service. The word "service" as used here refers to the actual performance of routine work, such as the application of diagnostic methods, treatment, etc., and does not refer to administrative regulatory service.

(2) When state, provincial and federal governments authorize the work of any duly qualified class of veterinarians who have met state, provincial and federal requirements, there should be no discriminatory regulation against their services. When indemnities are paid to owners for animals slaughtered because of infectious diseases, such indemnities should not be limited to animals condemned only by veterinarians regularly employed by the federal, state, county or provincial governments, but should be paid when such animals are disclosed as a result of a diagnosis of any qualified veterinarian authorized by the state or province, provided state or provincial and federal regulations governing the same are complied with.

(3) It is the opinion of this Association that the general use of special county, state, federal or provincial employes for the performance of routine work, like tuberculin testing, where animal husbandry is developed and qualified private practitioners are established, is not a wise permanent policy in the control of animal disease.

PUBLIC HEALTH

This Association recognizes the well established facts concerning the transmissibility of certain diseases of animals to human beings. The veterinarian should continue to render every possible service to health officials by supplying information with reference to animal diseases.

The relation of the veterinary profession to public health is important. The function of the veterinary profession is two-fold. First, to protect the health of animals, thus rendering their products salable and safe for human consumption. Second, to safeguard public health by the control of animal diseases transmissible to man, and by the inspection of animal food products.

The veterinary profession should commit itself to the policy of promoting the use of healthy animals and healthful animal products. This Association commends and encourages the con-

sumption of milk and milk food products from tuberculosis-free herds.

ALLIED ORGANIZATIONS

The term "allied organizations" refers to all associations and societies actively interested in the problems of agriculture, live stock improvement, and public health. The veterinary profession through its membership should be identified with those organizations and participate in their deliberations whenever practicable, make provision for a representative of this Association to attend the annual conference of allied organizations and invite representatives of such organizations to attend the annual convention of this Association.

The Committee on Policy of this Association should confer with the Committee on Policy of the United States Live Stock Sanitary Association, in an endeavor to harmonize policies and activities that may be of mutual interest and benefit.

PUBLICITY

The scientific and learned professions have been among the last groups to avail themselves of channels of publicity and have adopted such means to a less extent than other interests have done.

The policy of this Association should be to promote and carry on ethical publicity, calculated to improve the service of the veterinary profession.

HUMANE MEASURES

1. Probably no more useful service has been rendered mankind than that which has been accomplished through animal experimentation. The advancements in bacteriology and physiology have been brought about mainly through such experimentation. Without the knowledge which has been gained in these two subjects, veterinary as well as human medicine would have been greatly handicapped.

2. This Association should support humane measures and assist in teaching and guiding the public mind in correct methods of handling animals humanely.

VETERINARY BIOLOGICS

1. It appears desirable that this Association establish, in cooperation with the Federal Bureau of Animal Industry and producers of veterinary biological products, a classification of

veterinary biologics, whereby the veterinary practitioner may be guided and the live stock industry protected.

2. It is recognized by this Association that in the diagnosis, prevention and treatment of diseases of live stock, certain biologics are efficient, whereas others are in the experimental stage and still others are worthless. (This Association cannot endorse any biological product until its efficacy is definitely proven.)

3. Scientific research workers and producers of biologics have organizations of laboratory workers for the purpose of standardizing biologics, methods of production and nomenclature. These organizations have signified a desire to cooperate in every way with the A. V. M. A. for the improvement and standardization of biologics and the elimination of products that are proven inefficient. The Association recognizes and commends this constructive work, which was taken up by the manufacturers upon their own initiative and hereby endorses and encourages a continuance of this work.

PREVENTIVE MEDICINE

Recognizing that prevention is the essential factor in the control and eradication of disease, this Association is committed to a policy of more general use of every established prophylactic measure.

The Executive Board recommends the approval of the foregoing policy by this Association, and further that the following committees be maintained:

First: A Committee on Policy consisting of five members selected as follows: The President, the Secretary, the Treasurer, the Chairman of the Executive Board and one member to be appointed by the President.

Second: A Committee on Veterinary Biological Products, to consist of five members selected as follows: A representative of the producers of commercial biological products; a representative of the Federal Bureau of Animal Industry; a veterinarian conducting research work not connected with a commercial concern; a general practitioner, and a state or provincial regulatory official.

The hen is of more value to this country than Henry. Ford continues to cater to our restlessness but hens added over a billion dollars to our wealth last year by sitting still.—*Life*.

L O S T

Below is given a list of members of our Association, for whom we have no correct addresses. First-class mail, sent to these members at the addresses given after their names, has been returned by the post office, undelivered. The Secretary will be very glad if any of our members can furnish correct addresses for any of these men.

Allen, Dee L., Macksville, N. C.
 Allen, Frank E., 2410 Mission St., Spokane, Wash.
 Batchelder, Lawrence H., Concord, Mass.
 Booth, T. O., 414 Montana Ave., San Antonio, Texas.
 Bostrom, G. A., Wahoo, Nebr.
 Bourland, C. C., 2846 West St., Ames, Iowa.
 Boyd, Geoffrey A., Cheyenne, Wyo.
 Brach, Max W., Nashotah, Wis.
 Brand, J. M., 220 Golden Gate Ave., San Francisco, Cal.
 Calhoun, Harry L., Reese, Mich.
 Carpenter, Peter F., 417 Conover Bldg., Sacramento, Cal.
 Cohen, M. W., 15 Sanborn Ave., Somerville, Mass.
 Evans, A. C., Goodland, Kan.
 Francoise, Wm. L., 153 Winfield Ave., Detroit, Mich.
 Glaisyer, E. L., Tillamook, Ore.
 Gunster, Francis, Portland, Ore.
 Herbott, Walter K., Fort Sheridan, Ill.
 Hinckley, Kenneth F., Fort Myer, Va.
 Holton, Daniel J., Camp Travis, Texas.
 Howe, Harry H., Fort McKinley, Rizal, P. I.
 Hughes, M. J., 128 W. 53rd St., New York, N. Y.
 Johnson, Walter T., Houston, Texas.
 Juckiness, Ed. M., 2026 Bissell St., Chicago, Ill.
 Kellogg, Edgar A., Argentine, Kans.
 Kielsmeier, S. G., 5th Cavalry, Marfa, Texas.
 Lent, Ernest E., 1921 Nelson St., Chicago, Ill.
 Lovell, Roy, San Ysidro, Cal.
 Mathews, E., 187 Grand St., Jersey City, N. J.
 Miller, Melvin W., Box 793, Price, Utah.
 Mosley, Thomas, Duncan, Okla.
 Neilson, Norman, 735, 79th St., Portland, Ore.
 Noyes, Orrin W., 3709 Garfield Ave., Kansas City, Mo.
 Noyes, Ralph E., Hammond, La.
 Peterson, Wm. C., 408 Live Stock Exch., So. St. Paul, Minn.
 Randall, Thos. E., Owenton, Ky.
 Rostetter, B. F., Franklin, Texas.
 Schandan, Theo., Fort Bliss, Texas.
 Shipley, Michael, La Cruces, N. Mex.
 Soneral, William, Ferndale, Wash.
 Trigg, W. S., Health Office, Portsmouth, Va.
 Verduin, Francis J., 956 Mound St., Milwaukee, Wis.
 Webster, Charles, Opelousas, La.
 Welf, Oliver H., Herald Ave., Mantua, Ohio.
 Wende, John A., 503 Masten St., Buffalo, N. Y.
 Williams, N. F., 2116 Croay St., Dallas, Texas.

Some folks are so intent upon the extermination of the horse that they have even revamped the old saw to read: "Money makes the car go."

OTHER MEETINGS

THE RECENT WORLD'S DAIRY CONGRESS

After years of planning, the World's Dairy Congress convened in Washington, on October 2. This was a combined congress of the leaders in research, education and business. The United States took the initiative by forming a temporary organization of dairy students and industrial leaders in October, 1920. The cooperation of the United States government was assured through the Department of Agriculture and other departments, and the World's Dairy Congress was authorized by act of Congress of the United States of America, effective March 3, 1921. Invitations to the nations of the world to send delegates were issued by the President of the United States of America through its diplomatic representatives.

Prof. H. E. Van Norman, of the University of California, was the President of the Congress and made a trip to Europe to interest the foreign governments in the event. It had the cooperation of the International Dairy Federation, which has its headquarters at Brussels, Belgium, and also the backing of national and local dairy organizations in the United States.

The purpose of the Congress was to effect an international exchange of the newer knowledge of the sciences and practices of dairying and of the methods and results of a wise use of milk and its products in the human diet.

Its object was to bring together the forward-looking leaders who are shaping the trend of the dairy industry; to study the economic forces which influence domestic and international commerce in dairy animals and products and equipment; to discuss methods of disease prevention and of regulating and controlling the sanitation and standardization of dairy products; to consider the influence of a wise use of milk and its products on national health, and the vital importance of the part which they play in human physical and mental development.

The Congress had no authority to obligate the governments or organizations represented, although it was possible for them to make suggestions and recommendations as they might deem to be of interest to dairy science and the industry.

A special appropriation of \$30,000 by Congress, to the United States Department of Agriculture, rendered possible the print-

ing of the proceedings and the furnishing of all delegates with abstracts of the papers presented in either English, French, German or Spanish.

At the opening of the Congress in Washington there were eight hundred delegates present, and forty-five countries were represented. Three members of the President's Cabinet addressed the opening session: Charles Evans Hughes, Secretary of State; Herbert Hoover, Secretary of Commerce and President of the American Child Health Association; and Henry C. Wallace, Secretary of Agriculture. In the afternoon of the first day the delegates visited the White House and were received by President Coolidge, who delivered an address of welcome.

The Congress left Washington in special trains on October 3 and proceeded to Philadelphia, where they were addressed by Governor Pinchot, at a banquet at the Bellevue-Stratford Hotel. In Philadelphia a very interesting demonstration of the methods of teaching the value of proper diets in the schools was given under the direction of the Health Dramatics Department of the Philadelphia Interstate Dairy Council.

From Philadelphia the Congress moved in special trains to Syracuse, where the National Dairy Show was being held. Here they were addressed by the Governor of New York, Alfred E. Smith. A total of two hundred, thirty-six scientific papers was given by men from all parts of the world. In Syracuse five sessions of the Congress were being held in different assembly halls at the same time.

The Syracuse University held a convocation and conferred honorary degrees upon ten of the foreign delegates and President H. E. Van Norman.

The entertainment features and details of the Congress were carried out in an elaborate manner, and great credit should be given to President Van Norman and his assistants, particularly those in the United States Department of Agriculture, Bureau of Animal Industry, for the completeness of the arrangements.

The final session consisted of a banquet at Syracuse University, at which toasts were responded to by the foreign delegates, and they expressed their great appreciation of the hospitality which had been shown them, and of the great progress of the dairy industry of the United States. There was a feeling among those present that the Congress had been a very great success and a material milestone in the progress of the world's dairy industry.

Of particular interest to veterinarians was the address, in Washington, at the combined session on international trade, by Dr. John R. Mohler, Chief of the Bureau of Animal Industry on "International Trade in Dairy Cattle." The paper covered the desirability of an exchange of information between nations at regular intervals in regard to:

(a) The diseases which exist in live-stock-producing countries, their prevalence, geographic location of infected areas, the efforts being made to control or eradicate them and the means employed.

(b) Prevalent internal and external parasites and the means employed to combat them.

(c) The facilities provided for research and investigations of animal diseases and the progress of the work.

(d) The livestock sanitary organizations established in the various countries, their policies, personnel, changes, etc.

The dangers which attend the movement of live stock between different sections of a country and between countries and the need for protecting the live stock industry against the dangers from moving animals for breeding or other purposes.

Live stock sanitary control through veterinary organizations provided with authority and funds to function effectually in regulating the movement of animals, and in promptly applying control and eradication measures in combating animal diseases as occasion requires.

The desirability of international regulations, which should be as uniform as possible, and suggestions in regard to fundamental provisions of regulations which would seem generally applicable to countries engaged in exporting and importing live stock for breeding and other purposes.

Doctor Mohler made it evident that those countries lacking proper live stock sanitary regulations and an efficient personnel to enforce regulations and gather information relative to the diseases prevalent within their borders cannot expect any longer to receive very much consideration in the acceptance of their export animals in countries which do have such organizations to prevent the importation of animal diseases into their territory.

At Syracuse, on October 10, a session of the Congress was devoted to diseases of dairy cattle, in which Sir Arnold Theiler was Honorary Chairman, and Dr. Louis A. Klein, of Philadelphia, was Chairman. The following papers were read by their authors at this session:

"Protozoan Diseases of Dairy Cattle," by Sir Arnold Theiler, Dean of the Veterinary Faculty, Transvaal University College, South Africa.

"Diseases of the Digestive System of Cattle," by Dr. D. H. Udall, In Charge Ambulatory Clinic, Cornell University.

"Bovine Mastitis," by Dr. F. S. Jones, Pathologist, Rockefeller Institute.

"Mastitis," by Dr. J. N. Frost, Professor of Surgery, N. Y. State Veterinary College, Cornell University.

"Bovine Tuberculosis Control," by Dr. V. A. Moore, Director and Dean, N. Y. State Veterinary College, Cornell University.

Papers were also listed on the program as follows, but the authors were not present, and, as time was pressing, they were not presented. They will, however, be published in the proceedings of the Congress:

"Investigation on the Pathology of Streptococcus Mastitis and on the Eventual Transmission of Mastitis through Milking Machines," by O. Stenstrom, Professor of Pathological Anatomy, Royal Veterinary College, Sweden.

"Sterility in Dairy Cattle," by Dr. W. L. Boyd, Professor of Veterinary Medicine, University of Minnesota.

"The Present Status of our Knowledge of Abortion Disease," by Dr. C. P. Fitch, Chief, Division of Veterinary Medicine, University of Minnesota.

"Osteomalacia and Its Occurrence in Cattle in Norway," by Dr. Per Tuff, Professor of Anatomy and Animal Breeding, Agricultural College of Norway.

"The Control of the Foot and Mouth Disease in Europe," by Dr. Robert Ostertag, Counselor, Wurttemberg Ministry of the Interior, Germany.

Dr. Ch. Porcher, Chief, Department of Physics, Chemistry, Toxicology and Pharmacology, National Veterinary School, Lyons, France, whom, together with Sir Arnold Theiler, many veterinarians met at the Montreal meeting of the A. V. M. A., gave a paper at Session No. 15, covering the control of the quality of manufactured products, on "Cheese Nomenclature," and one at Session No. 21, covering milk secretion and the nutrition of dairy cows, on "The Physiology of the Udder."

Dr. S. Orla-Jensen, Professor, Veterinary Sciences and Bacteriology, Royal Agricultural and Veterinary College, Denmark,

presented a paper at Session No. 22, covering chemistry and bacteriology of milk, entitled "The Classification of Lactic Acid Bacteria." He again appeared on the program at Session No. 25, covering the control of the quality of milk, with a paper entitled "The Supply of Milk to Large Towns."

At Session No. 11, covering methods of improving and protecting the milk supply, papers were presented by Miss Alice Evans, Bacteriologist of the United States Public Health Service, on "The Relation of the Melitensis-Abortus Group of Organisms to Human Health;" by Dr. C. D. Pearce, Chief, Bureau Dairy Development and Chief Veterinarian, The Borden Company, on "Methods Employed within the Industry to Improve the Quality of Milk;" and by the writer on, "Health Department Organization in Developing a Municipal Pasteurized Milk Supply with a Final Bacterial Count under 15,000."

Sir Arnold Theiler, Dr. Ch. Porcher and Dr. Orla-Jensen were the foreign veterinarians attending the Congress. All three are authorities in their respective fields, and, at the Syracuse University Convocation, the honorary degree of Doctor of Science was conferred upon them.

A number of veterinarians not on the program attended the sessions in the several cities.

The variety of subjects presented by those appearing on the program is evidence of the diversified field for service by the veterinarian in this great industry. Space will not permit of further detail or even mention of many of the most interesting phases of work presented.

It is extremely fortunate that money was made available by the Congress of the United States to publish the entire proceedings, which will be an authoritative treatise on practically every phase of the dairy industry and its fundamental bearing on human welfare.

GEO. H. HART.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY

The regular monthly meeting of the Veterinary Medical Association of New York City was called to order by the President, Dr. J. Elliott Crawford, in the Academy of Medicine, 17 West 43rd St., on Wednesday June 6, 1923, at 8:30 p. m. The minutes of the May meeting were read and approved. Dr.

W. Reid Blair reported a case of lameness in an elephant. (Report published in JOURNAL, September, 1923.)

Dr. R. H. Spaulding read a very interesting paper on "Pyometra in the Bitch." (Published in the JOURNAL, this issue.) Dr. Geo. W. Little reported similar cases and had used selective bacterins. Dr. R. W. Gannett reported a case that recovered by douching with sterile water. Dr. Koch reported several cases that recovered by douching.

Dr. Henry Amling reported a similar case that did not respond to treatment and on autopsy the ureters were found to empty directly into the uterus, causing a continued vaginal discharge. Dr. W. Reid Blair found many cases infected with *B. coli* and believed that removing the uterus is the most satisfactory treatment in many cases.

A number of cases in the horse were reported. Dr. McKinney related an interesting case in his hospital that did not respond to treatment. This horse had a skin wound on the hip that was very itchy and he asked for suggestions. "Seedy-toe" was discussed by Drs. Chase, Shaw, DeVine, McKinney and Clayton.

Dr. Cassius Way reported cases in cattle practice. He divided the diseases into three important groups: First, digestive disorders; second, udder troubles; third, breeding problems. He spoke at length on these subjects and brought out many important points in the care of cattle. The feeding of cattle must not be overlooked as well as the kind of food used. In udder troubles, cleanliness and the proper way of milking are important. In many cases of mastitis, infection has occurred through the teats.

Breeding troubles seemed to be important factors in herd management. The bulls must be healthy, should have proper exercise and food and while they may seem healthy they may not have fertile semen. The raising of calves is an important factor and a hard problem on breeding farms.

Dr. C. G. Rohrer reported having successfully removed five calculi from the bladder of a Pomeranian bitch, each calculus being the size of a large hickory nut and their combined weight being two ounces. He also reported several other cases of lithiasis in the dog.

Dr. W. Reid Blair, chairman of the special committee appointed to collect funds for a donation to the building committee of the Academy of Medicine reported having received \$88.00. On motion the committee was ordered discharged with thanks and the money turned over to the Treasurer.

It was regularly moved and seconded that the resignation of Dr. Alfred Oberle be accepted. President Crawford appointed the following delegates to the New York State meeting: Drs. Bruce Blair, C. S. Chase and W. Reid Blair. To the A. V. M. A.: Drs. J. F. DeVine, C. Way, C. S. Chase and W. Reid Blair. On motion a vote of thanks was extended the members for their contribution to the program. No other business appearing, the meeting adjourned.

C. G. ROHRER, *Secretary.*

BRITISH COLUMBIA VETERINARY ASSOCIATION

The annual meeting of the British Columbia Veterinary Association was held at New Westminster, October 6, 1923, with a goodly number of members in attendance.

Dr. E. A. Bruce, of Agassiz, gave a report of the recent A. V. M. A. meeting in Montreal. He also furnished interesting details in connection with the organization of the Canadian National Veterinary Association.

In the evening Dr. Kenneth Chester introduced the advertising manager of one of the leading agricultural journals, who addressed the members on the advantages of advertising. In opening the discussion Dr. Chester stated that the profession was not getting the recognition it deserved in the reading columns of the agricultural papers, owing to the fact that veterinarians did not patronize the advertising columns. It was considered very doubtful if the Association could advertise as a body, chiefly on account of the prohibitive costs; furthermore, there was a marked difference of opinion as to whether individual advertising was "quite the thing." It was eventually decided to submit the question to a vote of the members, and for this purpose the Secretary was instructed to send a questionnaire to the members.

Dr. Kenneth Chester, for many years Secretary and Registrar, tendered his resignation to the Association, on account of the pressure of other duties. This was accepted with considerable regret, as much of the success of the Association was attributed to his long and faithful service.

The following are the newly elected officers: President, Dr. T. R. Hoggan, Vancouver; Vice-President, Dr. Ottewell, Ladner; Secretary-Treasurer and Registrar, Dr. W. Graham Gillam, Cloverdale. The Board of Examiners was appointed as follows: Drs. McKenzie, McKay and Thompson.

W. GRAHAM GILLAM, *Secretary-Treasurer.*

EASTERN IOWA VETERINARY ASSOCIATION

The annual meeting of the Eastern Iowa Veterinary Association convened at the Montrose Hotel, Cedar Rapids, Iowa., October 10-11, 1923, President C. M. Morgan, of Manchester, Iowa, presiding. There were about one hundred veterinarians in attendance. The Association was welcomed to Cedar Rapids by the Mayor and the response was delivered by Dr. M. E. Dickens, of Washington, Iowa.

The morning session of the first day was devoted to poultry practice and the following papers were presented: "The Veterinarian and Poultry Practice," by Dr. John Patterson, Hedrick, Iowa; "Chicken Disorders," by Dr. H. J. Fry, of Kalona, Iowa; "Chicken Diseases," by Dr. C. H. Smith, of Jesup, Iowa; and "Developing a Poultry Practice," by Dr. F. M. Maxfield, of Tama, Iowa.

At the evening session, Dr. D. A. Eastman, of Cedar Rapids, Iowa, presented the subject of "Small Animal Practice." "Tuberculosis Eradication" was discussed by Dr. Peter Malcolm, State Veterinarian, of Des Moines, "Infectious Abortion" was presented by Dr. Ashe Lockhart, of Kansas City. "Vaccination Complications" was the subject chosen by Dr. J. G. Schrader, of Oxford, Iowa. Dr. A. H. Quin, Jr., of Fort Dodge, Iowa, discussed "Swine Problems."

Wednesday evening a banquet was served, attended by the veterinarians and ladies. The banquet was followed by an entertainment and a dance.

The Thursday morning program was opened by Dr. E. R. Steel, of Grundy Center, Iowa, who discussed "Matters of Importance to Iowa Veterinarians." Dr. Henry Hell, of Wilton, Iowa, spoke on "Veterinary Publicity." Under the title of "What Happened at Montreal," Dr. C. H. Stange, President of the American Veterinary Medical Association, gave a report of the meeting recently held in Montreal. The subject of "Milk Inspection" was presented by Drs. A. R. Menary and A. M. Casper, of Cedar Rapids, Iowa.

Thursday evening a clinic was held at the hospital of Dr. Griffith and the following operations were performed: Dr. George Aulbury, of Monticello, Iowa, demonstrated a new method of spaying a bitch. Dr. H. E. Bemis, of Ames, Iowa, performed a radical operation for poll evil. Dr. Jerry Wolfe, of Grand Mound, Iowa, demonstrated the removal of a scirrhus

cord in a pig. Dr. John Patterson, of Hedrick, Iowa, gave a demonstration of caponizing. Dr. N. W. Ackerman, of Center Junction, Iowa, performed a cesarean section in a sow.

An election of officers resulted as follows: President, Dr. J. H. Odgers, De Witt, Iowa; Vice-President, Dr. J. C. McCabe, West Liberty, Iowa; Secretary-Treasurer, Dr. F. J. Crow, Iowa City, Iowa.

FRED J. CROW, *Sec.-Treas.*

PROPHYLACTIC CLUB OF AMERICA

The Prophylactic Club of America, composed largely of Connecticut veterinarians, held its fourth annual conference at Bantam Lake, Litchfield County, Conn., October 20-21, 1923. The meeting was held at the home of Commissioner J. M. Whittlesey, who was host. All conditions were perfect, and the meeting will pass into recollections as the best ever held and all present were well satisfied with the plans proposed for the union of forces, as represented by the Connecticut veterinarians and the Federal and State Departments.

Dr. A. E. Wight, of Washington, D. C., was the principal speaker. Of the seventy-five in attendance, over forty were veterinarians from Connecticut and adjoining states. New officers elected were: President, Dr. R. S. Todd, of New Milford; Secretary, Dr. G. E. Corwin, of Hartford; Orator, Dr. Thomas Bland, of Waterbury. Commissioner T. E. Robinson and his aide, Dr. J. M. Armstrong, of Rhode Island, were among those in attendance.

B. D. P.

MISSISSIPPI STATE VETERINARY MEDICAL ASSOCIATION

The eighteenth annual meeting of the Mississippi State Veterinary Medical Association was held in the directors' room, Grenada Bank Building, Grenada, Miss., October 24-25, 1923. The usual time for this Association to meet is in January, but owing to the fact that the North Mississippi Fair is held at Grenada, in October, a vote was taken which resulted in the almost unanimous consent to hold the meeting at this time, instead of January, 1924.

The meeting was called to order by the President, Dr. I. W. Edwards, of Vicksburg. The address of welcome was made by Hon. W. S. P. Doty, Grenada, Miss. In the absence of Dr. Tait

Butler, the response was made by Dr. D. F. Luckey, of St. Louis. Being next on the program, Dr. R. M. Staley, with the H. K. Mulford Co., of Philadelphia, Pa., gave a very interesting and instructive lecture on various anthrax vaccines, bovine abortion and rabies. The Association showed that it was interested in these subjects by thoroughly discussing each one. Drs. Quitman and Cary not being present, the meeting adjourned in order to give the members and visitors an opportunity to take in the polo games, horse races, and other attractions at the fair.

The business meeting was held at 6 p. m., followed by a talk on "Sheep Diseases," by Dr. D. F. Luckey, of St. Louis, which was thoroughly enjoyed by every one present. Dr. W. O. Hughes, of West Point, Miss., and Dr. J. V. Duckworth, of Hazlehurst, Miss., were proposed and accepted as new members in the Association. The banquet was held at the Grenada Hotel, at 9 p. m. This feature of the evening program was enjoyed by about fifty persons, including a number of ladies. Mr. Hoffa, owner of the Cotton States Anti-Hog Cholera Serum Plant, acted as toastmaster.

The address on "Current Therapeutics," by Dr. E. L. Quitman, of Chicago, was the first and only address of the Thursday morning session, which was followed by a lively discussion. Dr. C. E. Salsbery, of Kansas City, could not be present, and time would not permit the presentation of papers prepared by Drs. Hudson Chadwick, of Jackson, Miss., and W. O. Hughes, of West Point, Miss. Following Dr. Quitman's address, the members and visitors were conveyed to the Cotton States Anti-Hog Cholera Serum Plant in cars provided by the local committee, where Dr. J. S. Clark, B. A. I. Inspector in Charge, explained in detail the production of serum and virus.

From the serum plant Dr. Ferguson led the way to the Glenwild plantation, owned by Mr. Borden, of Chicago. Here the members of the Association were shown the spacious administration buildings and modern cattle barn used to house purebred Herefords and Shorthorns; also the horse barn modernly equipped and situated near the old colonial home, which has been converted into a modern residence by Mr. Borden.

Election of officers resulted as follows: President, Dr. W. P. Ferguson, Grenada, Miss.; 1st Vice-President, Dr. R. H. Mohlenhoff, Cleveland, Miss.; 2nd Vice-President, Dr. B. M. Daven-

port, Scott, Miss.; Secretary-Treasurer, Dr. C. G. Stalworth, Drew, Miss.

The next regular meeting of the Association will be held at Greenville, Miss., some time during the month of January, 1925.

H. L. FRY, *Secretary-Treasurer.*

MICHIGAN-OHIO VETERINARY ASSOCIATION

The annual meeting of the Michigan-Ohio Veterinary Association convened at the hospital of Dr. J. H. Lenfesty, Lyons, Ohio, Wednesday, October 31, 1923. The meeting was called to order by the President, Dr. A. J. Kline, of Wauseon, Ohio. About fifty veterinarians from Michigan and Ohio were in attendance.

The program was opened by Dr. J. H. Lenfesty, who demonstrated the Ferguson operation, for the relief of obstructed teat canal. Dr. Lenfesty stated that this operation was proving to be highly satisfactory in his hands.

Dr. H. J. Stafseth, Poultry Pathologist of the Michigan Agricultural College, held autopsies on two fowls that had been presented for the clinic. He followed with an address entitled "Poultry Sanitation and Hygiene." Dr. Stafseth gave many valuable pointers in connection with the successful handling of poultry.

Dr. Alvin Broerman, Bacteriologist of the Ohio Department of Agriculture, presented a very fine paper entitled, "The Common Diseases of Poultry." Then followed a very profitable discussion on various phases of poultry practice, and many of the veterinarians present volunteered suggestions with reference to handling various poultry diseases.

Dr. F. A. Zimmer, State Veterinarian of Ohio, addressed the meeting on the subject of "Practice of Veterinary Medicine near State Borders." Dr. Zimmer related numerous difficulties in connection with the control of animal diseases, particularly in connection with tuberculosis and tuberculin testing, in parts of the State immediately bordering on the five states which adjoin Ohio. He stated that many of these difficulties could be very much simplified if the local veterinarians were registered to practice in both states and although this was not absolutely essential, it would be of advantage both to the veterinarian and his clients. The subject was discussed by Dr. B. J. Killham, State Veterinarian of Michigan; Dr. Reuben Hilty, of Toledo, Ohio; Dr. C. W. Fogle, President of the Ohio State Veterinary Medical

Association, Dr. Paul Vaughn, Bureau of Animal Industry, inspector in charge of tuberculosis eradication in Ohio; and Dr. George Smith, of Toledo, Ohio.

Dr. C. W. Fogle then addressed the meeting on "Vaccination Don'ts." In his address Dr. Fogle gave the members the benefit of his very extensive experience in controlling hog cholera. A very animated discussion followed, which was lead by Dr. H. M. Newton, Bureau of Animal Industry, inspector in charge of hog cholera control in Michigan.

SOUTHEASTERN STATES VETERINARY MEDICAL ASSOCIATION

The eighth annual meeting of the Southeastern States Veterinary Medical Association was held at the O. Henry Hotel, Greensboro, N. C., November 12-13, 1923. The meeting was called to order by President M. Jacob, of Knoxville, Tenn. The Association was welcomed to Greensboro by Mr. C. W. Roberts, Secretary of the Greensboro Chamber of Commerce. The response was delivered by Dr. J. G. Ferneyhough, State Veterinarian of Virginia, who took advantage of the opportunity to invite the Association to hold the 1924 meeting in Richmond, Va.

In his presidential address Dr. Jacob referred to the period of readjustment which the veterinary profession has been passing through the past few years and expressed the belief that it is now realized that successful agriculture and health must depend very largely upon modern veterinary service.

"These agencies have at various times imposed some very difficult problems on this profession which have always been met and carried to a successful conclusion," Dr. Jacob said. "It is true that the veterinarian's remuneration is usually far below that of other professions, yet we must not at this time permit any backward step in our educational standards, but on the contrary, strive for those things which tend toward greater efficiency. Any other progress would mean retrogress instead of progress."

The literary program was opened with the reading of a splendid paper by Dr. A. G. G. Richardson, of Atlanta, Ga. The author reviewed conditions in the profession in the past, enumerating the various problems which are facing veterinarians at the present time, and made predictions for the future. Dr. Richardson is strictly of the opinion that the difficulties of the present

and future will be overcome just as readily as they have been in the past.

Dr. R. H. Parker, of Gastonia, N. C., read an extremely well prepared paper dealing with "Unusual Cases in General Practice." This paper will be published in the JOURNAL.

The afternoon session was opened with an address by Dr. Cassius Way, of New York City, entitled, "The Relation of the Veterinarian to Breeding Problems and Breeding Efficiency." Dr. Way reviewed in an intensely practical manner the various factors which combine to render animals efficient from the breeding standpoint. He stated that herd hygiene must be carefully observed at all times and nothing left undone that will promote and maintain the health of the animals in the herd, both individually and collectively. He covered in detail such subjects as maternity stalls, douching the bull, endocrine disturbances, cervicitis and allied conditions. Dr. Way demonstrated his favorite method of examining the cervix, using the Hopper forceps. Dietetics and digestive disorders in highly bred calves were thoroughly discussed. He also referred to cases of fat indigestion in calves, resulting in scours. Every one present felt that Dr. Way's address was intensely practical and of great value to the practitioners who were located in dairy and breeding districts.

Dr. C. A. Cary announced the subject of his address as "Two Failures." He then related two case reports, both of which were somewhat out of the ordinary. The first was the case of a bitch suffering from fibroids and a cystic ovary. Dr. Cary undertook to remove the fibroids by a very neat operation; the latter was successful, but the patient died while under the anesthetic. The condition of cystic ovary was revealed at autopsy. The other case was in a horse, upon which he had performed a nerving operation. This was followed by the formation of neuromas. Later this case was complicated by breaking down of the deep perforans tendon. Autopsy revealed a double fracture of the navicular bone.

The subject of "Fowl Typhoid" was presented by Dr. B. F. Kaupp, poultry pathologist, of Raleigh, N. C. This paper will be published in the JOURNAL. A short business session was then held and the advisability of incorporating the Association was thoroughly discussed. The Secretary was authorized to proceed with such incorporation in whatever state seemed most desirable. Fourteen new members were admitted to membership. Members

of the Greensboro Chamber of Commerce then took the visiting veterinarians for an automobile tour of the city.

Monday evening a banquet was served, followed by two addresses, Mr. Charles W. Gold, Treasurer of the Jefferson Standard Life Insurance Company and a member of the Governing Board of the North Carolina Agricultural College, spoke on the value of competent veterinary services to the live stock industry of the State. He then told those present of the strides which North Carolina was making, both agriculturally and industrially.

The other address, scheduled to be given by Dr. C. H. Stange, President of the American Veterinary Medical Association, was delivered by Dr. H. P. Hoskins, Secretary-Editor. Dr. Stange was unable to be present on account of the recent death of his father. Dr. Hoskins briefly reviewed the steps leading up to the consolidation of the offices of Secretary and Editor of the A. V. M. A. and related what had been accomplished during the past year. He spoke at length relative to the JOURNAL and its value to all members, regardless of the particular field in which they were engaged.

Dr. Hoskins announced that very shortly an executive board election would be held in District No. 4, a territory which embraces practically the same states which are represented in the Southeastern Association. He also called attention to the fact that in this district the number of members was somewhat below the average for the other districts, although a number of them were considerably smaller geographically. He closed by proposing a toast to Dr. Benjamin McInnes, of Charleston, S. C., who was present, and who has been a member of the A. V. M. A. for forty-seven years, and who now enjoys the distinction of being one of the three oldest members in the Association.

The Tuesday morning session was opened with an address by Dr. W. J. Lentz, of Philadelphia, Pa., on "Some Phases of Small Animal Practice." Dr. Lentz is Director of the Small Animal Clinic at the University of Pennsylvania, and has had an unusual opportunity to study animal diseases and their treatment. In his address he paid particular attention to distemper. It is the opinion of Dr. Lentz that there are at least four pathological conditions which clinically simulate distemper and which call for differentiation by the veterinarian, if they are to be treated most successfully. Dr. Lentz stressed the importance of paying more attention to dietetics in the treatment of distemper and

outlined various forms of medicinal treatment which had proved most satisfactory in his hands. Dr. Lentz stated that biologics for the treatment of canine distemper had been complete failures in his experience.

Dr. Lewis Taylor, of High Point, N. C., in a splendid paper paid a wonderful tribute to the work of Pasteur. Dr. Taylor reviewed a number of Pasteur's contributions to medical science and brought out the point that these were all the more remarkable in view of the fact that Pasteur had been neither a physician nor a veterinarian.

Dr. Wm. Moore, State Veterinarian of North Carolina, read a paper entitled, "Some Legal Phases of Veterinary Practice." Besides being well posted on veterinary medicine, Dr. Moore is well read in the law and this combination enabled him to treat his subject unusually well. He dwelt especially upon the obligations of the practicing veterinarian, with particular reference to his clients and patients. "Current Education of the Practitioner" was the subject of a well prepared paper by Dr. W. K. Lewis, State Veterinarian of South Carolina. This paper will be published in the JOURNAL.

Dr. A. L. Hirleman, Bureau of Animal Industry, inspector in charge of tuberculosis eradication, in Georgia, related "Experiences in Tuberculosis Eradication in Badly Infected Herds." Dr. Hirleman illustrated his subject with a number of charts. In one case he showed how difficult it had been to clean up a very valuable pure-bred herd. Although all three tests were used both singly and in combination, it seemed just about impossible to clean up this herd, as every retest revealed reactors. The reason for this difficulty was revealed by information subsequently obtained relative to the past history of this herd. It was ascertained that the owner had been in the habit of applying a subcutaneous tuberculin test about every three months, the result being that the animals in the herd were "plugged" and failed to react when subsequently tested by the Bureau of Animal Industry veterinarians.

In another case, Dr. Hirleman offered evidence to show that cows were continually being infected through the agency of a stream of water running through a pasture where the herd was kept. He believed that other sources of infection had been eliminated, in a study of the conditions surrounding this particular herd.

Officers for the year were elected as follows: President, Dr.

A. L. Hirleman, of Atlanta, Ga.; 1st Vice-President, Dr. R. H. Parker, of Gastonia, N. C.; 2nd Vice-President, Dr. J. G. Ferneyhough, of Richmond, Va.; 3rd Vice-President, Dr. J. I. Neil, of Snaford, N. C.; Secretary-Treasurer, Dr. J. I. Handley, of Atlanta, Ga. It was agreed to hold the 1924 meeting in Richmond, Va.

Members of the Association were unanimous in their praise for the efforts of Dr. Handley, in arranging the splendid program for the meeting and for the improved financial condition of the Association, as shown by the annual report.

The Schuylkill Valley Veterinary Association held its regular October meeting on a farm two miles south of Reading, Pa., where a large number of the very finest silver black foxes are being produced.

STATE LIVE STOCK SANITARY OFFICIALS NOVEMBER 15, 1923.

- Alabama—Dr. C. A. Cary, State Veterinarian, Live Stock Sanitary Department, Auburn.
- Arizona—Dr. S. E. Douglas, State Veterinarian, Phoenix.
- Arkansas—Dr. Joe H. Bux, State Veterinarian, Little Rock.
- California—Dr. J. P. Iverson, State Veterinarian, Sacramento.
- Colorado—Dr. C. G. Lamb, State Veterinarian, State Board of Stock Inspection Commissioners, Denver.
- Connecticut—Hon. J. M. Whittlesey, Commissioner of Domestic Animals, Hartford.
- Delaware—Hon. Wesley Webb, Secretary, State Board of Agriculture, Dover.
- Florida—Dr. J. V. Knapp, State Veterinarian, State Live Stock Sanitary Board, Tallahassee.
- Georgia—Dr. Peter F. Bahnsen, State Veterinarian, Bureau of Live Stock Industry, Atlanta.
- Idaho—Dr. Wendell R. Smith, Director, Bureau of Animal Industry, Boise.
- Illinois—Dr. F. A. Laird, Chief Veterinarian, Division of Animal Industry, Springfield.
- Indiana—Dr. R. C. Julien, State Veterinarian, Indianapolis.
- Iowa—Dr. Peter Malcolm, State Veterinarian, Commission of Animal Health, Des Moines.
- Kansas—Hon. J. H. Mercer, Commissioner, Topeka.
- Kentucky—Dr. W. H. Simmons, State Veterinarian, State Live Stock Sanitary Board, Frankfort.
- Louisiana—Dr. E. P. Flower, Secretary and Executive Officer, State Live Stock Sanitary Board, Baton Rouge.
- Maine—Hon. Herbert M. Tucker, Chief, Division of Animal Industry, Augusta.

Maryland—Hon. J. B. George, Chief, Department of Animal Industry, 816 Fidelity Bldg., Baltimore.

Massachusetts—Dr. L. H. Howard, Director, Division of Animal Industry, Boston.

Michigan—Dr. B. J. Killham, Chief Veterinarian, Bureau of Animal Industry, Lansing.

Minnesota—Dr. C. E. Cotton, Secretary and Executive Officer, State Live Stock Sanitary Board, St. Paul.

Mississippi—Dr. K. U. Jones, State Veterinarian, State Live Stock Sanitary Board, Agricultural College.

Missouri—Dr. H. A. Wilson, State Veterinarian, Board of Agriculture, Jefferson City.

Montana—Dr. W. J. Butler, State Veterinary Surgeon, Live Stock Sanitary Board, Helena.

Nebraska—Dr. L. R. Cantwell, State Veterinarian, Lincoln.

Nevada—Dr. Edward Records, State Quarantine Officer, State Board of Stock Commissioners, Reno.

New Hampshire—Hon. A. L. Felker, Commissioner of Agriculture, Concord.

New Jersey—Dr. J. H. McNeil, Chief, Bureau of Animal Industry, Trenton.

New Mexico—Hon. Matt Keenan, Secretary, Cattle Sanitary Board, Albuquerque.—Hon. John Robertson, Secretary, Sheep Sanitary Board, Albuquerque.

New York—Hon. H. J. Henry, Director of Bureau of Animal Industry, Albany.

North Carolina—Dr. Wm. Moore, State Veterinarian, Raleigh.

North Dakota—Dr. W. F. Crewe, State Veterinarian, State Live Stock Sanitary Board, Bismarck.

Ohio—Dr. F. A. Zimmer, Chief Veterinarian, Division of Animal Industry, Columbus.

Oklahoma—Dr. E. V. Robnett, State Veterinarian, Oklahoma City.

Oregon—Dr. W. H. Lytle, State Veterinarian, State Live Stock Sanitary Board, Salem.

Pennsylvania—Dr. T. E. Munce, State Veterinarian, Bureau of Animal Industry, Harrisburg.

Rhode Island—Dr. Thos. E. Robinson, State Veterinarian, Providence.

South Carolina—Dr. W. K. Lewis, State Veterinarian, Columbia.

South Dakota—Dr. J. E. Phelps, State Veterinarian, Live Stock Sanitary Board, Pierre.

Tennessee—Dr. W. B. Lincoln, State Veterinarian, Department of Agriculture, Nashville.

Texas—Dr. Leon G. Cloud, State Veterinarian, Live Stock Sanitary Commission, Fort Worth.

Utah—Dr. A. J. Webb, State Veterinarian, State Board of Agriculture, Salt Lake City.

Vermont—Hon. E. S. Brigham, Commissioner of Agriculture, Montpelier.

Virginia—Dr. J. G. Ferneyhough, State Veterinarian, State Live Stock Sanitary Board, Richmond.

Washington—Hon. E. L. French, Director, Department of Agriculture, Olympia.

West Virginia—Hon. J. H. Stewart, Commissioner of Agriculture, Charleston.

Wisconsin—Dr. V. S. Larson, State Veterinarian, Madison.

Wyoming—Dr. A. W. French, State Veterinarian, Cheyenne.

LEGISLATION AFFECTING VETERINARIANS YEAR 1923

ALABAMA:

Appropriated \$5,000 per annum for tuberculosis work.

ARIZONA:

A law was passed creating a State Board of Veterinary Medical Examiners and prescribing regulations for the practice of veterinary medicine and surgery in the State of Arizona.

A law was passed requiring that all dairy cattle shipped into the State of Arizona be retested for tuberculosis within a period of sixty days. The State made an appropriation of \$50,000 a year for two years, to be matched by a like amount from the Federal Government, for the eradication of tuberculosis among dairy cattle, under a cooperative plan.

An emergency appropriation of \$10,000 was made for continuing the work on tuberculosis eradication, begun in August, 1922, this appropriation to cover the period of four months (March to June) intervening until July 1, when the new appropriation became available.

ARKANSAS:

No live stock sanitary control measures passed, although the Legislature granted the right to practice to eight non-graduates in the State.

State veterinarian intends to assign one veterinary inspector to tuberculosis eradication work.

CALIFORNIA:

Bill passed both houses providing that counties could pay indemnity, but it was vetoed by the Governor, who also failed to sign a new veterinary practice act, providing for a higher license fee and an annual registration fee of \$2.00, and containing a clause that would give one-half of all fines collected to the Board for a revolving fund to be used in prosecutions.

COLORADO:

An attempt was made to abolish the State Board of Veterinary Medical Examiners, and thereby throw the State of Colorado wide open to anyone who wished to engage in the practice of veterinary medicine. The proposed bill was killed in committee.

A law was enacted authorizing cooperative work with the Federal Government, as well as with municipalities and counties. It provides for the establishment of tuberculosis eradication areas, and carries with it an appropriation of \$16,000, which is just double the amount of the former appropriation.

CONNECTICUT:

A measure was introduced into the Legislature providing that the Commissioner of Domestic Animals, at the request of the owner, employ a veterinarian at a fixed fee, to be paid by the owner, to make the accredited-herd test. This bill was reported unfavorably by the Committee on Agriculture and failed to pass.

The Legislature appropriated \$100,000 per year for two years for indemnity. Also \$15,000 as an emergency appropriation for the remainder of fiscal year.

DELAWARE:

The Legislature passed a law appropriating \$5,000 for the purchase of anti-hog cholera serum, same to be distributed free to qualified veterinarians, for the control of outbreaks of hog cholera. An appropriation of \$1,500 was made for the investigation and control of poultry diseases. This has been placed at the disposal of the Department of Animal Industry of the University of Delaware. An appropriation of \$50,000 was made for tuberculosis eradication for the year beginning July 1, 1923, and \$38,500 for the year following. These appropriations cover indemnities and operating expenses.

FLORIDA:

A bill was passed creating a State Live Stock Sanitary Board, and making the same a body corporate, prescribing the powers and duties of said Board,

as well as the qualifications of the members thereof, their compensation and term of office, and providing for the giving of bonds for the faithful performance of the duties of their office, providing for the employment of a State veterinarian and prescribing his duties, term of office, compensation and bond, providing for the division of the State of Florida into the quarantine areas and zones, prescribing the method and manner of tick eradication work in the State of Florida, etc.

A veterinary practice act was introduced and reached third reading in the House of Representatives, and, although there was no opposition to the bill, it failed to be passed, through not being reached on account of a congested calendar.

A law was passed providing for the purchase of anti-hog cholera serum and virus, to be used in the suppression of hog cholera in the State of Florida. The law provides that the State Live Stock Sanitary Board advertise for bids, and purchase under contract from the lowest and best bidder, the quality of the products being the paramount issue. The serum and virus are to be distributed at cost. A clause in the bill provides that each hog owner may obtain, free of cost, an amount not to exceed fifty per cent of the first 1,500 cc ordered. An annual appropriation of \$15,000 was made for carrying out the provision of this act.

The Legislature appropriated \$6,300 per year for two years for operating expenses, and also \$6,000 per year for two years for indemnity in connection with tuberculosis eradication work.

GEORGIA:

Legislature not in session.

IDAHO:

The Legislature appropriated \$10,000 for indemnity for two years. Also passed bill levying a one-mill tax on cattle valuation, which will raise \$12,000. Passed a bill limiting the appraisal to the assessed value, also prohibiting payment on cattle which have been in the State less than 120 days. Passed a bill permitting counties to make appropriations for tuberculosis work and providing for enforcement of quarantine in free areas.

ILLINOIS:

A law was passed, which became effective September 1, 1923, requiring all manufacturers and distributors of anti-hog cholera serum to obtain a license from the Bureau of Animal Industry, before being allowed to handle or sell said products within the State of Illinois.

Appropriated \$1,000,000 for the next biennium. This will allow \$50,000 per year for operating expenses and \$450,000 per year for indemnity. Passed a law providing that counties may appropriate funds. Also provided that State may pay all indemnity when Federal funds are exhausted.

INDIANA:

Appropriated \$100,000 per year for indemnity and \$40,000 per year for operation in connection with tuberculosis eradication work.

IOWA:

A bill was passed creating a Department of Agriculture and providing for the consolidation thereunder of a number of departments, including the Commission of Animal Health, the State Veterinary Department, the Dairy and Food Department, and several other minor departments pertaining to agriculture. This law went into effect July 1, 1923.

Another law was passed amending previous acts, so as to permit the establishment of additional methods for the eradication of bovine tuberculosis and thereby promote the health and welfare of the citizens of the State. Under this law the county area plan, as well as the county accredited area plan, are provided for.

Another law provided for reducing the indemnity for tuberculous cattle, the valuation of pure-breds being reduced from \$80 to \$50 and that of grades from \$40 to \$25.

The sum of \$250,000 per annum was appropriated for tuberculosis eradication work for two years.

KANSAS:

During the annual meeting of the Kansas Veterinary Medical Association, held in Topeka, on January 17 and 18, 1923, resolutions were passed requesting the legislative committee of the Association to employ legal advice and prepare to introduce legislative measures which should place the animal disease control activities under the direction of a live stock sanitary board with a State veterinarian in charge of the work.

This would have replaced the present Kansas Live Stock Commissioner's office, and resulted in the substituting of a veterinarian for a layman to administer the affairs of that office.

The Association pledged one hundred per cent support to the legislative committee in their efforts, and a special assessment of \$5.00 per member was made to support the cause financially. The law which is on the statute books was quite an obstacle to overcome, and considerable opposition was encountered. Propaganda was sent broadcast to breeders of pure-bred live stock in the State, and many breeders became interested in the bill and appeared before a legislative committee hearing, accompanied by about one hundred veterinarians. The bill, however, was defeated in committee.

Another attempt will probably be made at the next session of the Legislature, since there is considerable sentiment among the breeders to have a veterinarian in charge of animal disease control work in Kansas.

The Legislature made an appropriation of \$30,000 for all live stock sanitary work for the next biennium.

KENTUCKY:

An attempt was made in the recent session of the Legislature to amend the law, and thereby remove the license from serum manufacturers and allow them to distribute their products in the State without paying a license fee. This measure failed to pass.

Appropriated \$35,500 for all animal disease work for the fiscal year ending June 30, 1923; also same amount for fiscal year ending June 30, 1924. About \$30,000 per year of this will be used for tuberculosis eradication work. The indemnity funds are unlimited, as they come direct from the general fund.

LOUISIANA:

Legislature not in session during 1923.

MAINE:

A law was passed providing that all applicants for a license to practice veterinary science in the State must first pass an examination. An annual registration fee of \$1.00 was also provided.

Appropriated \$65,000 per year for two years, \$6,000 being for operation and \$59,000 for indemnity.

MARYLAND:

Legislature not in session.

MASSACHUSETTS:

Appropriated \$100,000 for indemnity for tuberculous cattle, for one year. Appropriation for operation comes out of general fund.

MICHIGAN:

A law was passed providing that the owner of a tuberculous animal shall receive one-half of the appraised value, not to exceed \$30 for a grade animal or \$60 for a pure-bred, registered animal. The right is given to county supervisors to appropriate funds for tuberculosis work.

Another bill was passed providing an appropriation of \$250,000 for each of the next two fiscal years, to be used in paying indemnities for tuberculous cattle.

An amount of \$76,000 for each of the next two fiscal years was appropriated for the operating expenses of the Bureau of Animal Industry.

An amendment to the sheep-dipping law was made, providing that sheep intended for breeding purposes and shipped into the State during the period between August 31 and May 1 should not be subjected to the provisions of the act. In view of the fact that most of the sheep shipped into Michigan are feeders, and that the vast majority of these arrive in the State during

the period specified in the law, the amendment practically nullifies the sheep-dipping law.

An attempt was made to secure the passage of a farmer vaccination bill, modeled very closely after the Iowa statute. The measure was opposed by the State Bureau of Animal Industry, a number of the leading swine producers in the State, as well as the veterinary profession. The bill had some rather influential backing, and it was reported out favorably by the Agricultural Committee of the House, only to be lost when it came to a vote on the floor of the House.

MINNESOTA:

A law was enacted permitting farmers to vaccinate their own hogs. Although this bill, as introduced, was an exact copy of the Iowa statute, several constructive amendments to the bill were made. Under the law no permits are granted in a county unless it has been officially pronounced as infected with hog cholera by the State Live Stock Sanitary Board, or unless at least five outbreaks of hog cholera have occurred in the county, been diagnosed and officially reported as such by qualified licensed veterinarians.

Another amendment to the bill changed the punishment for receiving rebates from serum companies, from revocation of license to a misdemeanor only.

Another bill provides for the area plan of control of tuberculosis. Counties may levy 25 cents per head on cattle, to provide funds for carrying on "area" work.

A law was also passed whereby indemnity will not be paid for an animal unless it is one year of age and unless it has been slaughtered within one hundred and fifty days from the date of its condemnation, nor will indemnity be paid if the owner has been feeding milk or milk products derived from creameries that do not pasteurize, as is required by the State law.

The Legislature appropriated \$40,000 for salaries, \$15,000 for contingent and overhead, and \$200,000 annually for general indemnity purposes. An additional appropriation of \$75,000 was made for indemnities, to be immediately available for payment of accrued claims, for the then present fiscal year, and \$100,000 annually for indemnities for tuberculous cattle killed under the area plan of control in counties.

Total appropriations for the next two years for tuberculosis eradication work amount to \$710,000.

MISSISSIPPI:

Legislature not in session.

MISSOURI:

A measure was introduced but failed of passage, providing for the amending of the veterinary practice act, so as to make it lawful for any person to perform operations of castrating, dehorning, spaying, and vaccinating against hog cholera and blackleg.

The Legislature appropriated \$100,000 for operating expenses and \$50,000 for indemnity for 1923 and 1924, or \$50,000 per year for operation and \$25,000 per year for indemnity. The counties pay the same amount of indemnity as the State, therefore, the sum of \$50,000 a year is available for indemnity. A bill was passed so that no indemnity is paid on cattle imported into the State unless they have passed a retest made not less than 90 days after arrival.

MONTANA:

By mutual agreement between the Live Stock Sanitary Board and the State Department of Agriculture, the State Department of Agriculture law was amended so as to provide them with authority to inspect creameries, receiving stations and ice cream factories; also for the law to provide regulations governing the standards of butter and ice cream. The previous law provided that the Live Stock Sanitary Board should have control of all of this work and the chemical analysis of these dairy products, which interfered very greatly with the work of the chemical laboratory in making chemical analyses of live stock feeds and matters pertaining to live stock sanitation.

The Live Stock Sanitary Board maintains its control over dairies and milk plants and standards governing the production and sale of milk and cream,

as well as its control over tuberculin testing of all cattle, and other work pertaining to live stock sanitary control.

About \$25,000 per year will be set aside for indemnity. The Legislature appropriated about \$108,000 for Live Stock Sanitary Board for the current year, and the same amount for next year.

NEBRASKA:

A law was enacted providing for tuberculosis eradication, under the county area plan.

Another measure which became a law, amended the existing statute, which provided for the collection of fees to be charged for inspections for the eradication of tuberculosis. Under the provisions of this act, the fee for testing animals other than those under State and Federal supervision shall be \$1.00 per animal for the first five animals, and at the rate of 50 cents per head for the next twenty animals, and at the rate of 25 cents per head for every animal in excess of twenty-five head, to be paid by the owner to the Department of Agriculture or its agent at the time the test is made. These fees may be allowed by the Department of Agriculture to the authorized agent performing the tests, such fees to be in lieu of salary or other emolument therefor.

The sum of \$285,000 was appropriated, for the two-year period, for the purpose of eradicating bovine tuberculosis, under the supervision of the Department of Agriculture.

Passed bill outlining plan for area work. Reduced indemnity to maximum of \$30.00 for pure-breeds and \$15.00 for grade cattle.

NEVADA:

An amendment to the general quarantine laws of the State was passed, which gives the State Quarantine Officer definite authority to appoint deputies for the inspection of agricultural commodities under quarantine by other States offered for shipment to same. Under a strict interpretation of the law, live stock is classed as such a commodity, and, therefore, the amendment may be applied in the case of veterinarians inspecting live stock destined for interstate shipment, if necessary.

From a fund raised by a special levy on live stock, \$5,000 per year is set aside for indemnity and \$5,000 per year for operation.

NEW HAMPSHIRE:

There was an attempt made to amend the veterinary practice act, whereby non-graduates would be authorized to use the titles "Doctor" or "Veterinary Surgeon" in connection with their names, instead of the word "Licensed Veterinarian." The measure failed to pass.

The Legislature appropriated \$100,000 per year for two years, \$85,000 being for indemnity and \$15,000 for operation. Also, \$35,000 emergency for remainder of fiscal year.

NEW JERSEY:

The sum of \$100,000 was appropriated for tuberculosis eradication work.

NEW MEXICO:

Legislature appropriated \$5,000 for indemnity for one year.

NEW YORK:

Two bills were introduced during the legislative session, neither of which was reported favorably from the Public Health Committee. One bill provided for eliminating the New York licensing requirement, now in effect, and the other provided for permitting veterinarians to register without examination, upon certificate of two veterinarians.

The Legislature appropriated \$2,500,000 to pay accrued indemnity claims, also the same amount (\$2,500,000) for tuberculosis indemnity during the year beginning July 1, 1923, \$300,000 to be immediately available.

NORTH CAROLINA:

Two measures were introduced providing for licensing non-graduates, but these died in committee and never reached the floor of the general assembly.

The Legislature appropriated \$20,000 per year for indemnity for two years. This is four times as much as has been appropriated heretofore.

NORTH DAKOTA:

Legislature appropriated \$95,000 for tuberculosis work for two years. This will allow \$25,000 per year for operating expenses and \$22,500 per year for indemnity.

OHIO:

The Legislature appropriated \$150,000 per year for two years for indemnity; also appropriated funds for operating, about \$25,000 per year.

OKLAHOMA:

The Legislature appropriated \$25,000 per year for two years for indemnity, and repealed the law paying indemnity before slaughtered. Also changed the indemnity law so that the State can pay 50 per cent of appraisal, which is limited to \$150.00 for pure-breds and \$50.00 for grades.

OREGON:

There were four separate County Dairy Herd and Meat Inspection laws passed at this session of the Legislature. These laws provide for the appointment of a County Dairy Herd and Meat Inspector, who is to test all the dairy cattle in each county at least once during every year, and inspect animal carcasses that are suspected of being infected with any infectious or contagious disease. Practitioners are appointed to do this work, and they are paid on the average of \$10.00 per day for their services. This fund is accumulated through a charge of 35 cents per head for every animal tested, which moneys are turned into the County Fund, out of which these officials are paid. Oregon now has seven County Dairy Herd and Meat Inspectors.

The Legislature appropriated \$56,000 for all live stock sanitary work for the two years beginning July 1, 1923, \$15,000 of which will be available for indemnity each year, and the same amount from the counties, making \$30,000 per year in all. The amount of indemnity was reduced from one-third to one-fourth of the difference between the appraisal and salvage. Maximum for grades \$20.00, and pure-breds \$40.00, to be gradually reduced until January 1, 1927, when it will be \$5.00 for grades and \$20.00 for pure-breds.

PENNSYLVANIA:

The Administrative Code, or reorganization bill, reduces the number of departments by consolidating numerous ones. The Bureau of Animal Industry is done away with, along with the statutory positions of the State and the Deputy State Veterinarian. It provides for an executive board, consisting of the Governor and four department heads, which create bureaus, make appointments, adjust salaries, etc.

The Pennsylvania State Board of Veterinary Medical Examiners and Registrars is placed under the Department of Education, with the Secretary of Education as member ex-officio. The board itself (examining board) remains the same, consisting of five veterinarians appointed by the Governor.

House Bill No. 602, introduced by Dr. W. A. Haines, representative from Bucks County, provides for an appropriation of \$100,000 for the Veterinary School, University of Pennsylvania, as well as free tuition for residents of Pennsylvania desiring to take the course in veterinary medicine.

The Act of March 19, 1923, provides for the money derived from the Dog Law to care for the maintenance of the Bureau of Animal Industry and the paying of indemnity for cattle condemned and killed on account of transmissible diseases.

It is estimated that this will allow \$175,000 per year for indemnities and \$100,000 per year for operation. Also passed a bill for \$235,000 to cover back claims, and a bill for \$60,000 to cover claims from January 1, 1923, to June 30, 1923.

RHODE ISLAND:

The Legislature appropriated \$22,000 for all tuberculosis eradication work for the year ending November 30, 1923.

SOUTH CAROLINA:

The Legislature appropriated \$10,000 per year for operating expenses and \$4,000 per year for indemnity. The indemnity fund can be increased, if necessary, by budget commission.

SOUTH DAKOTA:

The Legislature appropriated \$330,000 per year for indemnity for two years, beginning July 1, 1923. Also \$7,500 per year for operation. Passed a bill permitting counties to cooperate.

TENNESSEE:

A bill was introduced to modify the present veterinary practice law, but, through the efforts of some of the veterinarians of the State, the author of the bill was persuaded to withdraw it, and consequently it never came up for final consideration.

The Legislature appropriated \$30,491 for the two-year period for all live stock sanitary work.

TEXAS:

A bill was defeated, introduced to allow non-graduates to become licensed and enjoy the same privileges as qualified veterinarians. It appears that the present veterinary practice act prevents some 800 or 900 empirics, located throughout the State, from practising, and they have endeavored to use every possible means to become legally qualified under the law. Although the proposed bill succeeded in passing the Senate Committee, with a favorable report, and passed the Senate with a large majority, by the time it was referred to the Committee of the House, the Texas veterinarians had knowledge of it, and immediately made strenuous efforts to secure the defeat of the measure. The Texas State Veterinary Medical Association employed an attorney, and each member was assessed for the purpose of defraying the incidental expenses. The veterinarians received splendid assistance from the medical profession throughout the State, as well as from a large number of prominent cattlemen and stockmen.

The Legislature appropriated \$20,000 per year for two years for indemnity

UTAH:

Appropriated \$5,000 per year for two years for operating expenses, and also passed a bill levying an annual tax of three mills on the value of all dairy and breeding cattle, which will raise about \$8,000 per annum for indemnity.

VERMONT:

Appropriated \$100,000 per annum for two years, about \$20,000 being for operation and \$80,000 for indemnity. Also passed a law, effective April 2, 1923, limiting appraisal to \$85.00 on grades and \$125.00 on pure-breds, State paying one-fourth difference between salvage and appraisal. Indemnity money is apportioned to each county in proportion to amount of assessed valuation of all property. If a county does not take up its allotment in six months' time, the money may be allotted to other counties.

VIRGINIA:

The Legislature appropriated \$25,000 per year for indemnity for two years, beginning March 1, 1923.

WASHINGTON:

An appropriation of \$50,000 was made for tuberculosis eradication work for two years.

Also appropriated \$15,000 to cover back claims. Also appropriated funds to carry five State inspectors, about \$20,000 per year. Passed bill giving authority to enforce tuberculin test on cattle exposed to or suspected of having tuberculosis.

WEST VIRGINIA:

The Legislature, at an adjourned session, appropriated \$32,220 to cover indemnity and operating expenses for next fiscal year.

WISCONSIN:

The Legislature appropriated \$255,000 for indemnity under the area plan, \$70,000 for same under accredited-herd plan, \$150,000 for same under private plan; total \$475,000 for indemnity per year for two years. Also appropriated \$75,000 per year for operating expenses for two years.

WYOMING:

The Legislature appropriated \$10,000 for indemnities for two years. Also \$29,080 for operating expenses for two years, about \$15,000 of which will be used for tuberculosis work.

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Note. For the past five or six years the annual report of the United States Live Stock Sanitary Association has contained a fairly complete bibliography on bovine infectious abortion, together with the report of the committee on infectious abortion. The report for 1922 failed to include this bibliography on account of a change in the personnel of the committee.

It is thought worth while to make this bibliography available without interruption, and the Editor of the Journal of the A. V. M. A. has kindly consented to provide the space necessary for this year, at the request of the former chairman of the abortion committee, who will be glad to receive notice of any corrections or omissions.

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COMMUNICATION

A VETERINARIAN IN BRAZIL

TO THE EDITOR:

It is with great pleasure, and with no reluctance, that I remit for my dues beginning September, 1923. Veterinary literature has to take the place, largely, of veterinary conversation in this vast country, where practicing veterinarians are to be found only in less than half a dozen of the largest cities of Brazil. Nor are there lots of fine openings here for veterinarians as yet.

The same conditions exist here that formerly existed in the States; comparatively cheap live stock, lack of appreciation of



Dr. G. A. Roberts, Official Veterinarian, inspecting the Champion Native-Bred Stallion at the District Fair, Lavras, Minas, Brazil, July 14, 1923 (mid-winter).

veterinary training and every stock owner or farm-hand his own veterinarian. Things will be different some day, for improvements are taking place along all lines.

There are several veterinarians in the country, however, but with very few exceptions they are all federal or state men, and they are found in only a limited number of the states. The only opportunity for an outside veterinarian is, either to secure a Government appointment, on a three-year contract, as the writer did in 1919, through no effort of his, or to join an Agricultural Mission School teaching staff, as the writer did seven

months ago. He'll not get rich at the latter but he will find a much greater field of usefulness along veterinary lines than in an official position.

The writer had hoped to induce the State of Federal government to establish a veterinary post for this District, in connection with the Agricultural College, but as yet it has not been accomplished, hence the writer is drawing the magnificent salary of two contos of reis, at present rate of exchange \$200.00 and board, per year. However, the work is pleasant, the students are interesting, and the climate superb, in a country of unlimited possibilities.

So far as I know I believe I am the first veterinarian teaching in a foreign mission school. The school here is a Presbyterian institution known as the "Instituto Evangelico." It is divided into three parts, collegio or primary department, gymnasio or high school department, and Escola Agricola or Agricultural College.

The enclosed view shows the writer, as official veterinarian at the District Fair of Lavras, inspecting the champion native-bred stallion. The Fair was held on the college campus the middle of July. It is an annual affair and financed by the Agricultural Society of this District.

Please find enclosed check for dues and lapel emblem. There are three or four Fords in this district but I have no use for one, nor a car at present, hence need no emblem for same.

G. A. ROBERTS.

Lavras, Minas, Brasil, September, 1923.

BIG MEETING FOR OHIO

Dr. Harry T. Moss, Secretary of the Ohio State Veterinary Medical Association, has plans pretty well in hand for the coming annual meeting, to be held in Columbus, January 9-10-11, 1924. Indications point to one of the largest meetings ever held by this Association, and Secretary Moss already has the promises of a number of nationally prominent veterinarians, who will contribute to the program. One full day will be devoted to a clinic, which will be divided into four sections. A banquet will be served on the evening of the second day. Headquarters will be at the Deshler Hotel.

NECROLOGY

OTTO C. BARDES

Dr. Otto C. Bardes died at Stapleton, N. Y., May 14, 1923. Dr. Bardes was born in Stapleton, N. Y., August 29, 1892. He graduated from the Senftner Preparatory School, and from the Veterinary School, University of Pennsylvania, class of 1913. He practiced, for a time, in Grove City, Pa. He was a member of Alpha Psi Fraternity.

PAGE L. GILBERT

Dr. Page L. Gilbert died at Kansas City, Mo., September 5, 1923. Dr. Gilbert was born at Monova, Iowa, December 25, 1882. He was a graduate of the Veterinary Division, Iowa State College, class of 1906. He entered the service of the Bureau of Animal Industry the same year, and remained with the Bureau until the time of his death. He was assigned to Virus-Serum Control work. Dr. Gilbert's death was very sudden, the result of angina pectoris. He was buried at Ottumwa, Iowa. He is survived by his widow and widowed mother.

We extend our heartfelt sympathy to Dr. and Mrs. F. Y. S. Moore, of McAlester, Oklahoma, in the death of their 6-year-old son "Billie," who died November 3, from diphtheria.

MARRIAGES

Dr. Rex D. Bushong (K. S. A. C. '21) to Miss Vivian Hall, both of Manhattan, Kansas, August 5, 1923.

Dr. E. A. Tunnicliff (K. S. A. C. '21) of Champaign, Ill., to Miss Gertrude Cate, of Manhattan, Kansas, July 5, 1923.

Dr. Erwin Veranus Moore (Corn. '17) of Cortland, N. Y., to Miss Lulu Miranda Williams, of Owego, N. Y., November 10, 1923.

Dr. D. S. Weaver (K. C. V. C. '16) to Miss Kathryn Barnoske, both of Coon Rapids, Iowa, at Des Moines, Iowa, November 3, 1923.

BIRTHS

To Dr. and Mrs. James F. Adee, of Stanberry, Mo., a daughter, May 7, 1923.

To Dr. and Mrs. C. E. Zollinger, of Junction City, Kans., a son, July 18, 1923.

To Dr. and Mrs. B. E. McCullough, of Eagle Grove, Iowa, a daughter, in October.

To Dr. and Mrs. G. W. Huegerich, of Breda, Iowa, a son, Paul Leonard, October 13, 1923.

To Dr. and Mrs. Given, of Marcus, Iowa, a daughter, Bernadette, October 27, 1923.

To Dr. and Mrs. Robert V. Christian, of Wichita, Kans., a son, David Matthews, June 7, 1923.

To Dr. and Mrs. William Dohrer, of Ayrshire, Iowa, a son, William Joseph, November 4, 1923.

PERSONAL

Dr. Luther E. Olson (K. C. V. C. '11) is located in Avon, Ill.

Dr. Hilborn H. Groat (K. S. A. C. '21) is now at Chase, Kansas

Dr. F. G. Cuervo (U. P. '10) is general manager of a large sugar plantation in Cuba.

Dr. L. H. Adams (U. P. '09) has been transferred from Bellows Falls to Montpelier, Vt.

Dr. H. B. Thompson (Iowa '19) has changed locations, from Storm Lake to Danbury, Iowa.

Dr. C. E. Zollinger (K. S. A. C. '19) is a member of the Rotary Club of Junction City, Kan.

Dr. Chas. H. Rosenstiel (Chi. '08) gives his new address as 419 Saxby Avenue, Freeport, Ill.

Dr. Millard Myers, Jr., (Corn. '18) has removed from Evart, Ky., to La Follette, Tenn. (Box 15.)

Dr. G. A. Handley (Chi. '04), who recently located in Chillicothe, Ohio, has gone to Macon, Miss.

Dr. William S. Rader (K. C. V. C. '10) has removed from Smackover to Camden, Ark., P. O. Box 358.

Dr. Ching Sheng Lo (K. S. A. C. '23) is teaching in the Nan Wu Middle School, Horan, Canton, China.

Dr. C. A. Arias (U. P. '10), of Havana, Cuba, is Secretary-Treasurer of the Cuban Veterinary Association.

Dr. A. W. Schuppan (Amer. V. C. '90) expects to spend the winter on Jekyl Island, Brunswick, Georgia.

Dr. George S. Jermyn (Ont. '00) has been transferred from Osoyoos, British Columbia, to North Battleford, Sask.

Dr. Fred W. Lange (Colo. '23) has removed from Aberdeen, So. Dak., to 220 South Liberty Street, Salem, Ore.

Dr. John H. Smyth (McK. '17) has removed from Wharton, Texas, and established a practice at Halls, Tenn.

Dr. W. D. Foss has a new location. He is now at Cooperstown, No. Dak., having left Church's Ferry, same state.

Dr. H. H. Bishop (Ont. '15), formerly stationed in Toronto, Ont., is now at McAdam Junction, New Brunswick.

Dr. E. E. Patterson (Gr. Rap. '01), of Detroit, Mich., recently installed an X-ray apparatus in his small animal hospital.

Dr. Donald Kemp (Ont. '10) has accepted a position in the Meat Inspection Division of the Detroit (Mich.) Board of Health.

Lt. Paul R. King (K. S. A. C. '15) is now stationed at Fort Des Moines, Iowa, after three years of foreign service in Panama.

Dr. E. H. Marquardt (Ohio '23) has changed his location from Atlanta, Ill., to Bloomington, Ill. His address is 1615 W. Locust.

Dr. D. M. Purdy (K. S. A. C. '17) has been transferred from Vinita, Okla., to Wichita, Kans. He is located at 1406 So. Main Street.

Dr. William E. Nicholls (Ont. '19) has been transferred from Winnipeg, Manitoba, to Toronto, Ontario. He is at 357 Lander Avenue.

Dr. John F. Erdley (K. S. A. C. '20), formerly of Buena Vista, Colo., has taken over the practice of Dr. I. A. Phinney, at Loveland, Colo.

Dr. R. E. Hammond (Mich. A. C. '22) has resigned his position with the Detroit Board of Health to accept a position in South Bend, Ind.

Dr. Fred G. Hartwig (K. S. A. C. '16), of Goodland, Kans., has been commissioned a First Lieutenant in the Veterinary Officers' Reserve Corps.

Dr. Samuel H. Johnston (U. P. '96) has moved from Philadelphia to New York City. He gives his new address as 611 West 112th Street, Apt. 5.

Dr. Hugh F. J. Arundel (Cinn. '19), on tick eradication work with the B. A. I. in Georgia, has been transferred from Blakely to Thomasville, Ga.

Dr. J. J. Frey (K. S. A. C. '14) is Superintendent of Dairy Service, Division of Animal Husbandry, California Department of Agriculture, Sacramento, Calif.

Dr. Robert Armstrong (Det. '97) of Detroit, Mich., has disposed of his practice to Dr. J. R. McCarthy (Ont. '15), who was his assistant for a number of years.

Dr. J. A. Howarth (K. S. A. C. '23) has accepted a position on the teaching staff of the School of Veterinary Medicine, of the Washington State College, at Pullman.

Dr. D. E. Davis (K. S. A. C. '22) has left Manhattan, Kansas, to accept a position in the Avian Pathology Laboratory, University of California, Petaluma, Calif.

Dr. A. F. Staub has been transferred from Buffalo, N. Y., to New Orleans La., as B. A. I. inspector in charge, succeeding Dr. R. W. Tuck, who has gone to England.

Dr. C. J. Cook (K. C. V. C. '13) of the B. A. I. force, formerly stationed in Omaha, Nebr., has been transferred to Sacramento, Calif. He is living in Red Bluff, Calif.

Dr. Jesse H. White (Chi. '05) has changed his abode. Formerly at 7926 Bennett Avenue, Chicago, he now receives his mail at 1618 South Third Avenue, Maywood, Ill.

Dr. S. R. Johnson (K. S. A. C. '20) is in charge of the Animal Pathological and Diagnostic Laboratory, recently removed from the Health Department to the Department of Agriculture, at Lansing, Mich.

Dr. George G. Anderson (Ont. '13) of New York City,, believes in being prepared for any emergency. He is registered to practice in the States of New York, New Jersey, Connecticut and Massachusetts.

Dr. E. J. Frick (Corn. '19) has been advanced to the position of Professor of Comparative Medicine, made vacant by the resignation of Dr. W. E. Muldoon, on the faculty of the Veterinary Division of the Kansas State Agricultural College.

Dr. E. L. Reed (U. S. C. V. S. '11), formerly at Chipley, Florida, is now located at Pensacola, with the Florida State Live Stock Sanitary Board, on hog cholera control and tuberculosis eradication work. Dr. Reed's address is 1110 North Reus St.

Dr. J. G. Ferneyhough (U. S. C. V. S. '99) enjoys the triple distinction of being a vice-president of three large organizations at the same time, the American Veterinary Medical Association, the United States Live Stock Sanitary Association and the Southeastern States Veterinary Medical Association.

Dr. Wm R. Hinshaw (Mich. A. C. '23) is a member of the staff of the Department of Bacteriology, Kansas State Agricultural College, Manhattan, Kans. He holds the position of Instructor in Veterinary Serum Therapy and Poultry Diseases made vacant by the resignation of Dr. F. R. Beaudette (K. S. A. C. '19).

Dr. F. J. Baker (Corn. '05), county veterinarian of St. Lawrence County, has formed a partnership with Dr. J. R. Tremlett (Corn. '23), who has taken over his partner's extensive practice. Baker and Tremlett plan to erect a new and modern hospital in the near future, with facilities for the proper inspection of the meat and milk interests of Gouverneur, N. Y., of which they have charge.

Dr. George H. Hart (U. P. '03), of the University of California, writes that none of the members of the Division of Veterinary Science suffered any loss in the recent fire which devastated a large section of the residence district of Berkeley. The University buildings were entirely preserved, and, by great effort, the buildings used for stabling their experiment herd, on the eastern part of the campus, were saved.

Dr. J. B. Reidy (Corn. '02), of Augusta, Maine, Federal Inspector in charge of tuberculosis eradication in that State, addressed the fourth annual conference of local health officers, which was held in Augusta recently. Dr. Reidy's subject was "Tuberculosis in Cattle and Its Relation to the Milk Supply." A very fine account of the transactions of the conference, including Dr. Reidy's address, appeared in the Daily Kennebec Journal, of October 31.

